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(12) **United States Patent**
Boyea

(10) **Patent No.: US 11,548,727 B2**
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(54) **TRANSFORMATIVE EXTENDER AND METHOD THEREOF**

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(72) Inventor: **Christopher E. Boyea**, Burnt Hills, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 428 days.

(21) Appl. No.: **16/037,731**

(22) Filed: **Jul. 17, 2018**

(65) **Prior Publication Data**

US 2020/0024072 A1 Jan. 23, 2020

(51) **Int. Cl.**

B65F 1/08	(2006.01)
B65D 5/06	(2006.01)
B65D 5/02	(2006.01)
B65F 1/04	(2006.01)
B65D 21/08	(2006.01)
B65D 5/04	(2006.01)

(52) **U.S. Cl.**

CPC ***B65F 1/08*** (2013.01); ***B65D 5/029*** (2013.01); ***B65D 5/061*** (2013.01); ***B65D 21/083*** (2013.01); ***B65F 1/04*** (2013.01); *B65D 5/04* (2013.01)

(58) **Field of Classification Search**

CPC . B65F 1/10; B65F 1/04; B65D 21/083; B65D 5/029; B65D 5/04; B65D 5/061; B65D 11/186; B65D 2519/0092

USPC 220/908.3, 4.03; 229/112, 113, 126, 907, 229/117

See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

385,726	A *	7/1888	Reynolds	229/125.17
1,238,090	A	8/1911	Beringer	
1,666,294	A	4/1928	Downes-Martin	
1,724,743	A	8/1929	Allen	
1,858,793	A	5/1932	Reynolds	

(Continued)

FOREIGN PATENT DOCUMENTS

JP	2012140217	7/2012
KR	2020110006981	2/2013
WO	2013150307	10/2013

OTHER PUBLICATIONS

Office Action (dated Jan. 12, 2016) for U.S. Appl. No. 14/818,175, filed Aug. 4, 2015.

(Continued)

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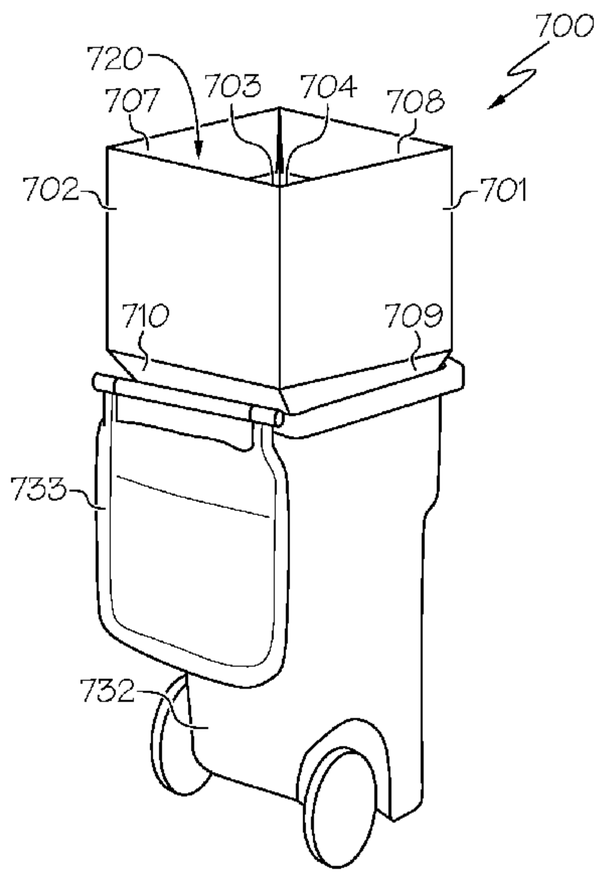
Assistant Examiner — Jennifer Castriotta
(74) *Attorney, Agent, or Firm* — Schmeiser, Olsen & Watts, LLP

(57) **ABSTRACT**

An embodiment of a box is configured to be transformed to include a tapered structure configured such that when the transformed box is inserted into the receptacle, the tapered structure provides a universal fit. An embodiment of an extender is formed by steps including providing a single piece of material having a first edge and a second edge and forming, by cutting the single piece of material, at least one top extension extending from at least one wall and at least one bottom extension extending from the at least one wall such that the at least one top extension is foldable to abut the at least one wall. A method for collecting waste materials includes providing a receptacle and a box, and disrupting the extender. An embodiment of an extender comprises a first wall, a second wall, a third wall, and a fourth wall.

19 Claims, 24 Drawing Sheets



(56) **References Cited**

U.S. PATENT DOCUMENTS

2,107,995	A		2/1938	Statham	
2,429,958	A		10/1947	Liebmann	
2,572,610	A		10/1951	Gilbert	
2,927,377	A		3/1960	Lewis	
3,119,494	A		1/1964	Rosenstiel	
3,455,498	A	*	7/1969	Gadiel	B65D 5/10 229/117
3,525,962	A		8/1970	Javorik	
3,539,091	A		11/1970	Murray	
3,785,534	A	*	1/1974	Smith	B65D 77/062 222/460
3,944,130	A	*	3/1976	Smith	B65D 5/029 229/114
4,161,252	A		7/1979	Howells	
4,280,676	A		7/1981	Betts	
4,628,007	A		12/1986	Ledsham	
4,852,757	A		8/1989	Milton	
4,860,910	A		8/1989	Zipper	
4,932,930	A	*	6/1990	Coalier	B31B 50/00 493/128
4,940,138	A		7/1990	Hornstein	
4,974,737	A		12/1990	Miller	
4,976,737	A		12/1990	Leake	
4,979,547	A		12/1990	Hoerner	
5,022,548	A		6/1991	Stakis	
D318,163	S		7/1991	Chalmers	
5,035,563	A		7/1991	Mezey	
D318,896	S		8/1991	Starkweather	
5,048,778	A		9/1991	Wright	
5,147,271	A	*	9/1992	Bacques	B65D 5/02 493/176
5,271,589	A		12/1993	Belous	
5,400,955	A	*	3/1995	Coalier	B65D 5/008 229/103.3
5,417,338	A		5/1995	Roy et al.	
5,445,397	A		8/1995	Evans	
5,598,942	A		2/1997	Cowie	
5,642,828	A		7/1997	Sorens	
5,704,541	A	*	1/1998	Mogard	B65D 5/746 229/125.15
5,765,614	A		6/1998	Kardosh et al.	
5,897,084	A		4/1999	Judge	
5,915,768	A		6/1999	Young	
6,062,415	A		5/2000	Harper	
6,131,759	A		10/2000	Young	
6,135,518	A		10/2000	Holthaus	
6,581,796	B1		6/2003	Pilkinton	
6,938,860	B2		9/2005	Singleton	
7,077,283	B2		7/2006	Yang et al.	
7,192,037	B1		3/2007	Pena	
7,219,705	B2		5/2007	Wallek	
7,302,978	B1		12/2007	Kolarik	
7,562,784	B2		7/2009	Stevenson	
7,789,238	B2		9/2010	Claypool	
7,866,538	B2		1/2011	Liao	
D633,268	S		2/2011	Bottita	
7,984,733	B2		7/2011	Noonan	
8,479,780	B2		7/2013	Fernandez et al.	
8,757,563	B2		6/2014	Muse	
9,771,184	B2		9/2017	Arcot	
9,783,362	B2		10/2017	Boyea	
2004/0089657	A1		5/2004	Waszak	
2006/0144467	A1		7/2006	Butzer	
2007/0158345	A1		7/2007	Booth et al.	
2008/0029658	A1		2/2008	Vanbost	
2008/0251526	A1		10/2008	Fick	
2010/0089916	A1		4/2010	Fielden	
2010/0108826	A1		5/2010	Fernandez	
2011/0309208	A1	*	12/2011	Muse	B65B 67/1238 248/97
2011/0309209	A1		12/2011	Muse	
2012/0012228	A1		1/2012	Karabas	
2012/0248118	A1		10/2012	Perkowski	
2015/0014310	A1		1/2015	Liu et al.	
2015/0069054	A1		3/2015	Nolan et al.	
2015/0375558	A1		12/2015	Ben-Or	
2016/0031641	A1		2/2016	Boyea	
2016/0137334	A1	*	5/2016	Garland	B65D 5/10 229/113
2016/0145041	A1		5/2016	Fritch	
2017/0210558	A1		7/2017	Boyea	
2017/0341859	A1		11/2017	Boyea	
2018/0086492	A1		3/2018	Weathers	
2018/0093826	A1		4/2018	Boyea	

OTHER PUBLICATIONS

Office Action (dated Sep. 14, 2016) for U.S. Appl. No. 14/818,175, filed Aug. 4, 2015.
Advisory Action (dated Jan. 10, 2017) for U.S. Appl. No. 14/818,175, filed Aug. 4, 2015.
Office Action (dated Mar. 13, 2017) for U.S. Appl. No. 14/818,175, filed Aug. 4, 2015.
Notice of Allowance (dated Jun. 16, 2017) for U.S. Appl. No. 14/818,175, filed Aug. 4, 2015.
Issue Notification (dated Sep. 20, 2017) for U.S. Appl. No. 14/818,175, filed Aug. 4, 2015.
Office Action (dated Jan. 11, 2018) for U.S. Appl. No. 15/480,723, filed Apr. 6, 2017.
Office Action (dated Jun. 6, 2017) for U.S. Appl. No. 15/480,723, filed Apr. 6, 2017.
Office Action (dated Aug. 25, 2017) for U.S. Appl. No. 15/672,503, filed Aug. 9, 2017.
Office Action (dated Jun. 6, 2018) for U.S. Appl. No. 15/672,503, filed Aug. 9, 2017.
Office Action (dated Feb. 8, 2019) for U.S. Appl. No. 15/672,503, filed Aug. 9, 2017.
Office Action (dated Jan. 26, 2018) for U.S. Appl. No. 15/831,600)—filed Dec. 5, 2017.
Office Action (dated Sep. 7, 2018) for U.S. Appl. No. 15/831,600)—filed Dec. 5, 2017.
Office Action (dated Dec. 13, 2018) for U.S. Appl. No. 15/831,600)—filed Dec. 5, 2017.
Office Action (dated Mar. 7, 2019) for U.S. Appl. No. 15/982,807)—filed May 17, 2018.
Office Action (dated Sep. 28, 2018) for U.S. Appl. No. 15/982,807)—filed May 17, 2018.

* cited by examiner

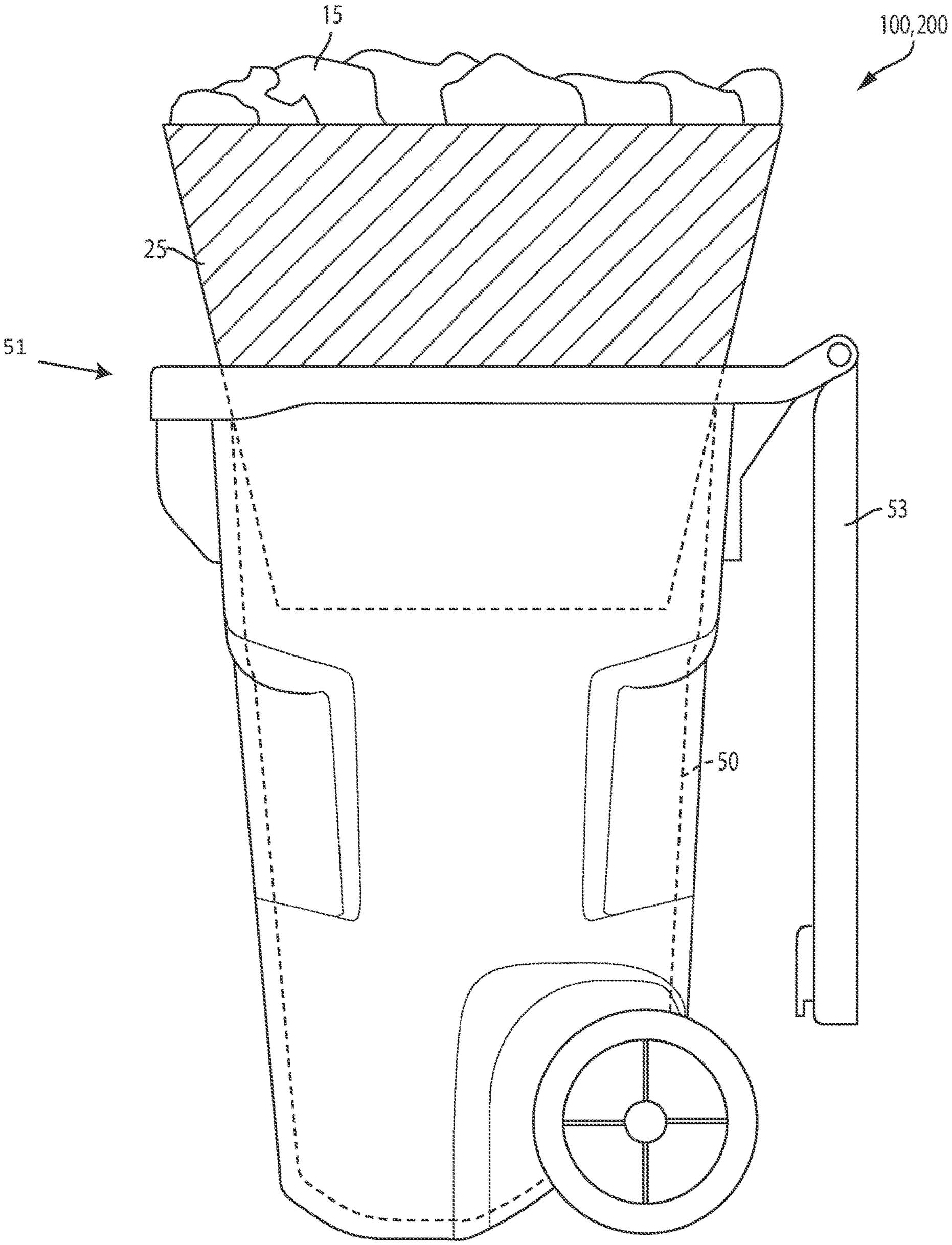
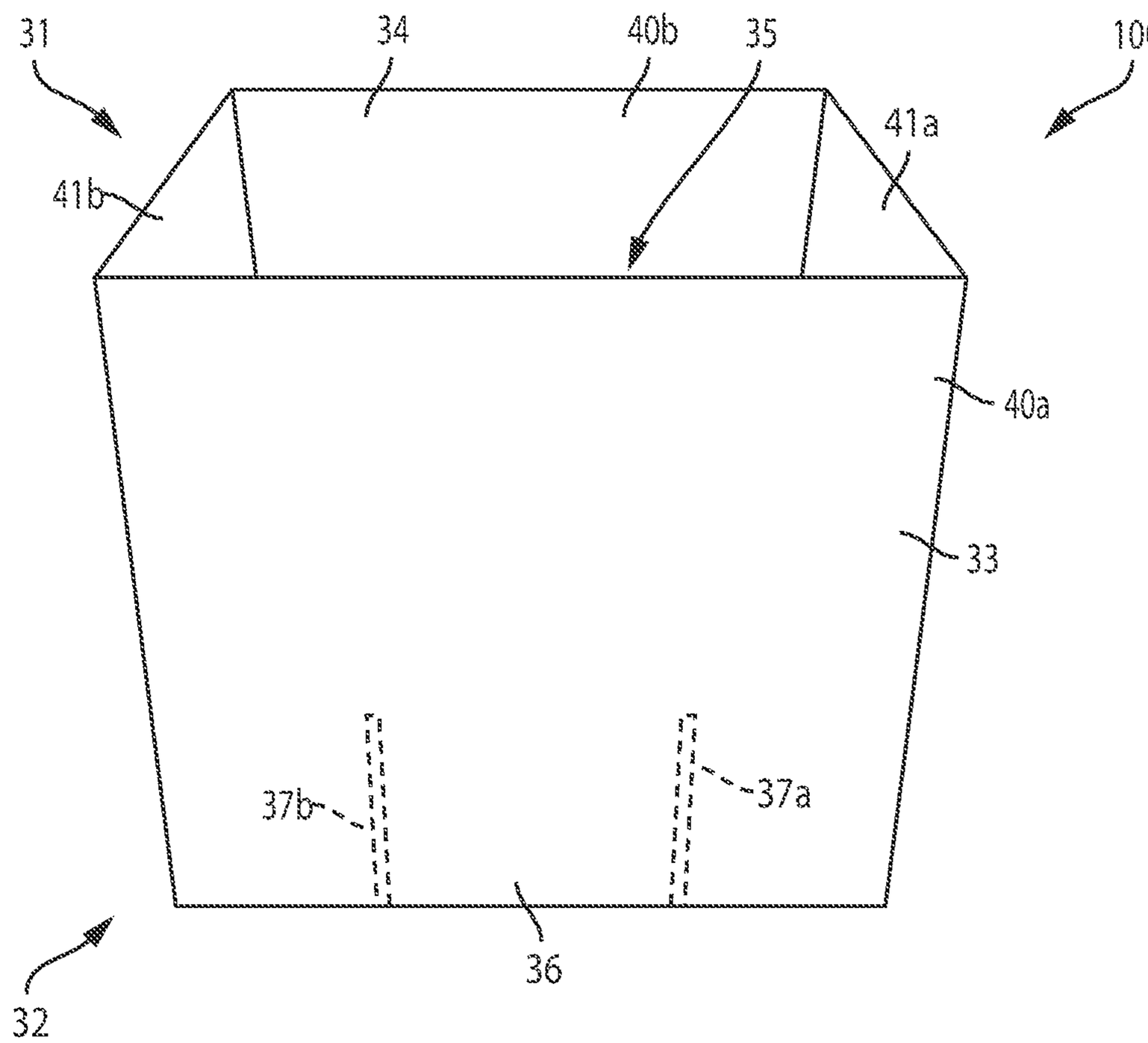


FIG. 1



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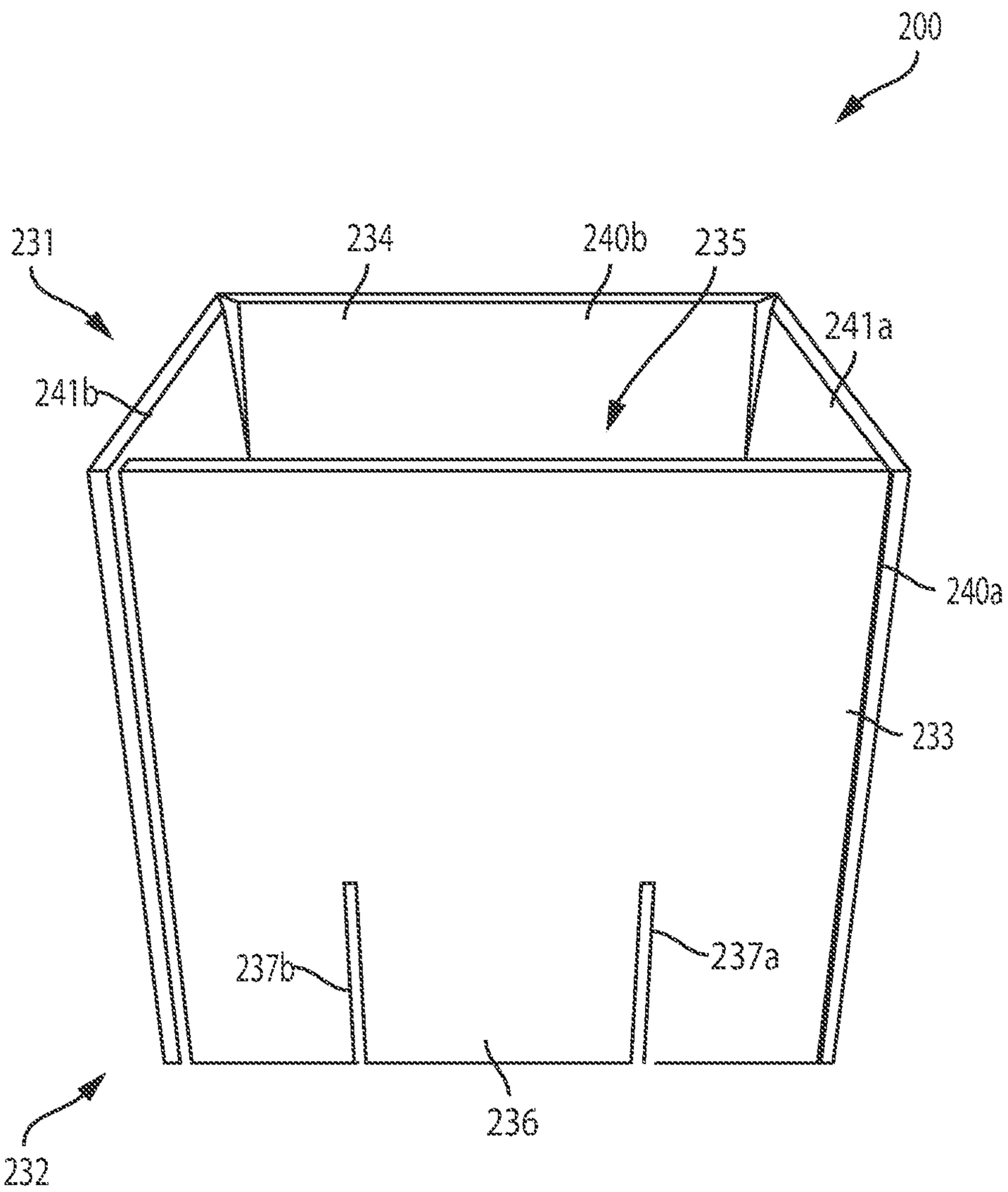

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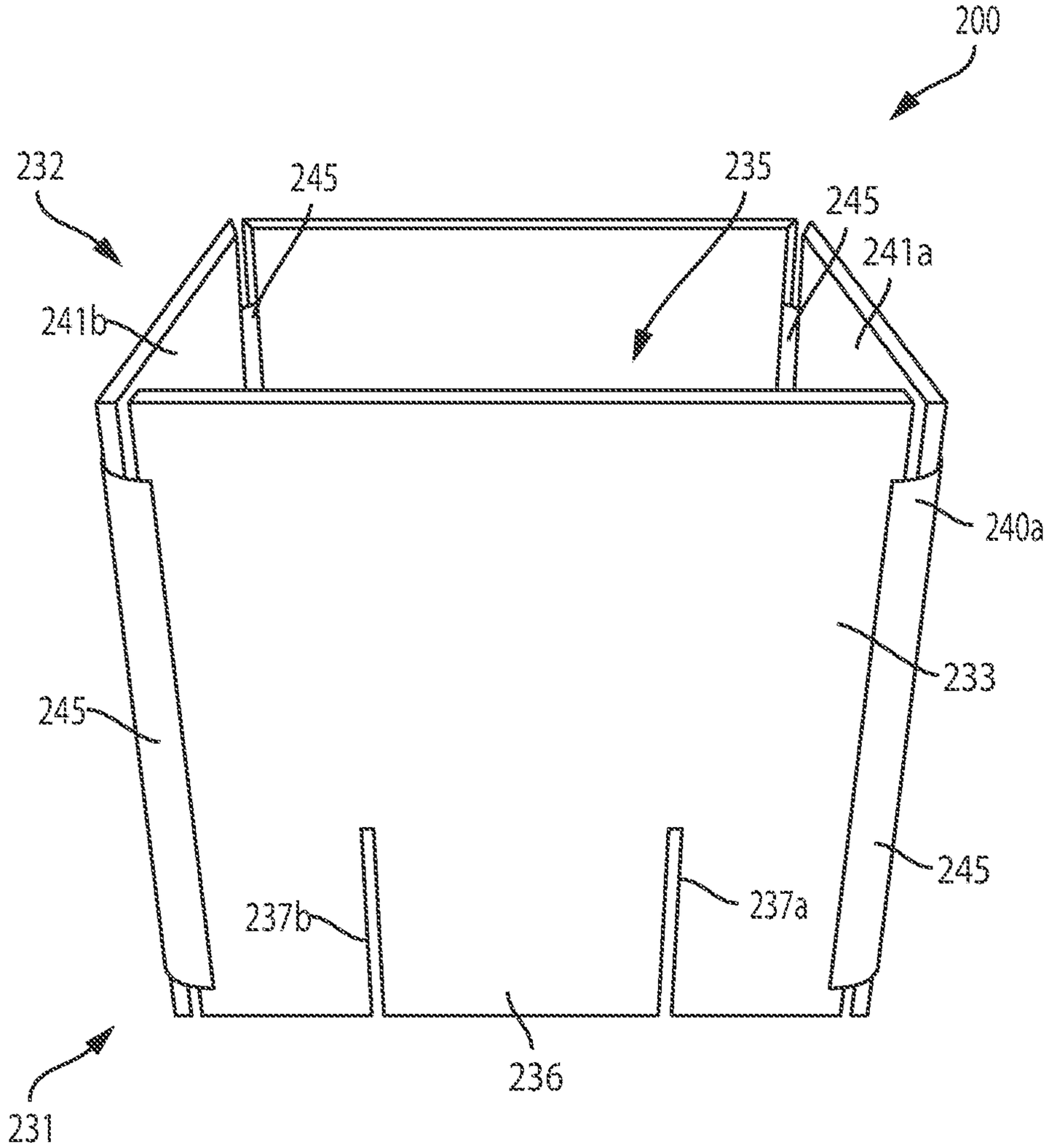
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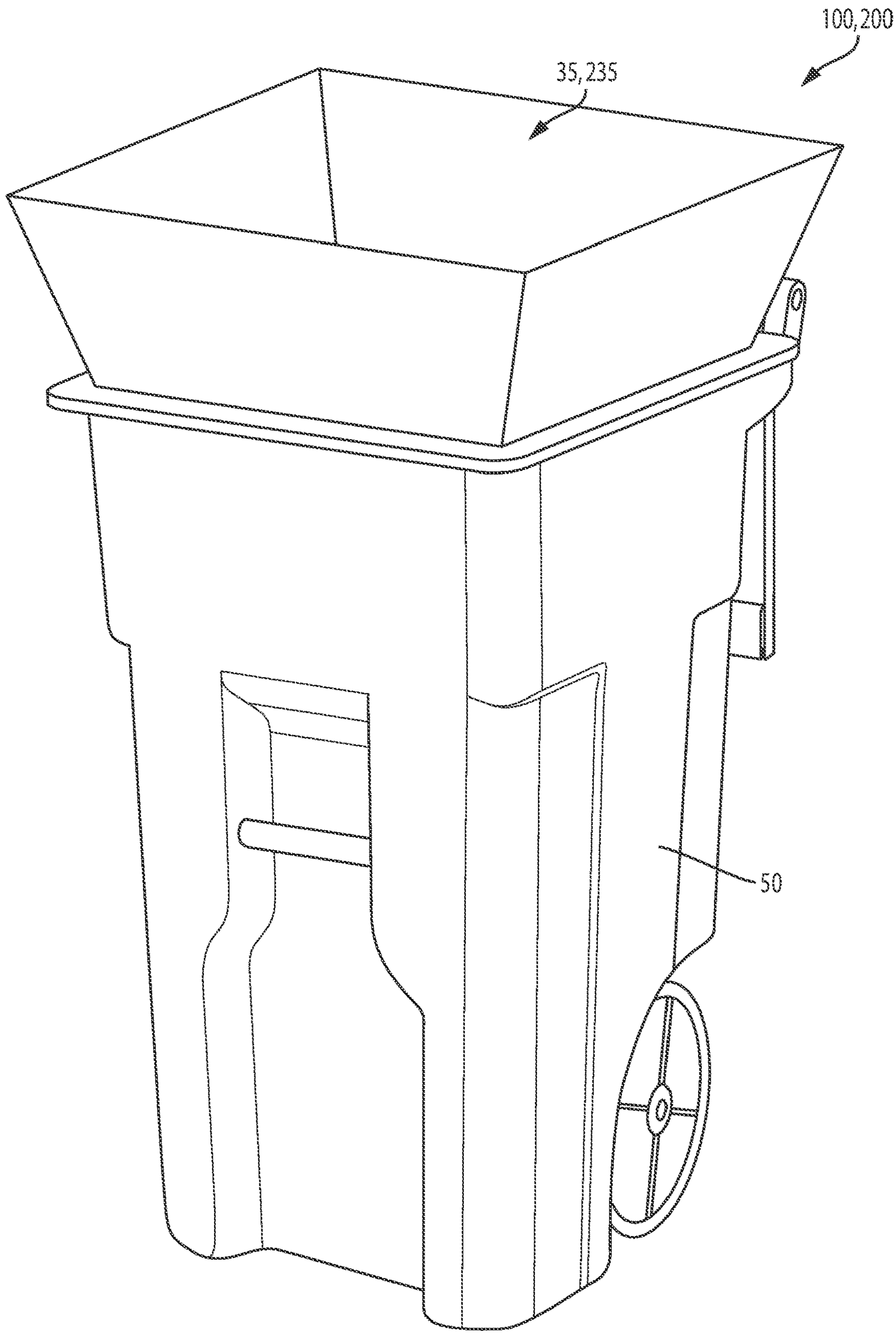

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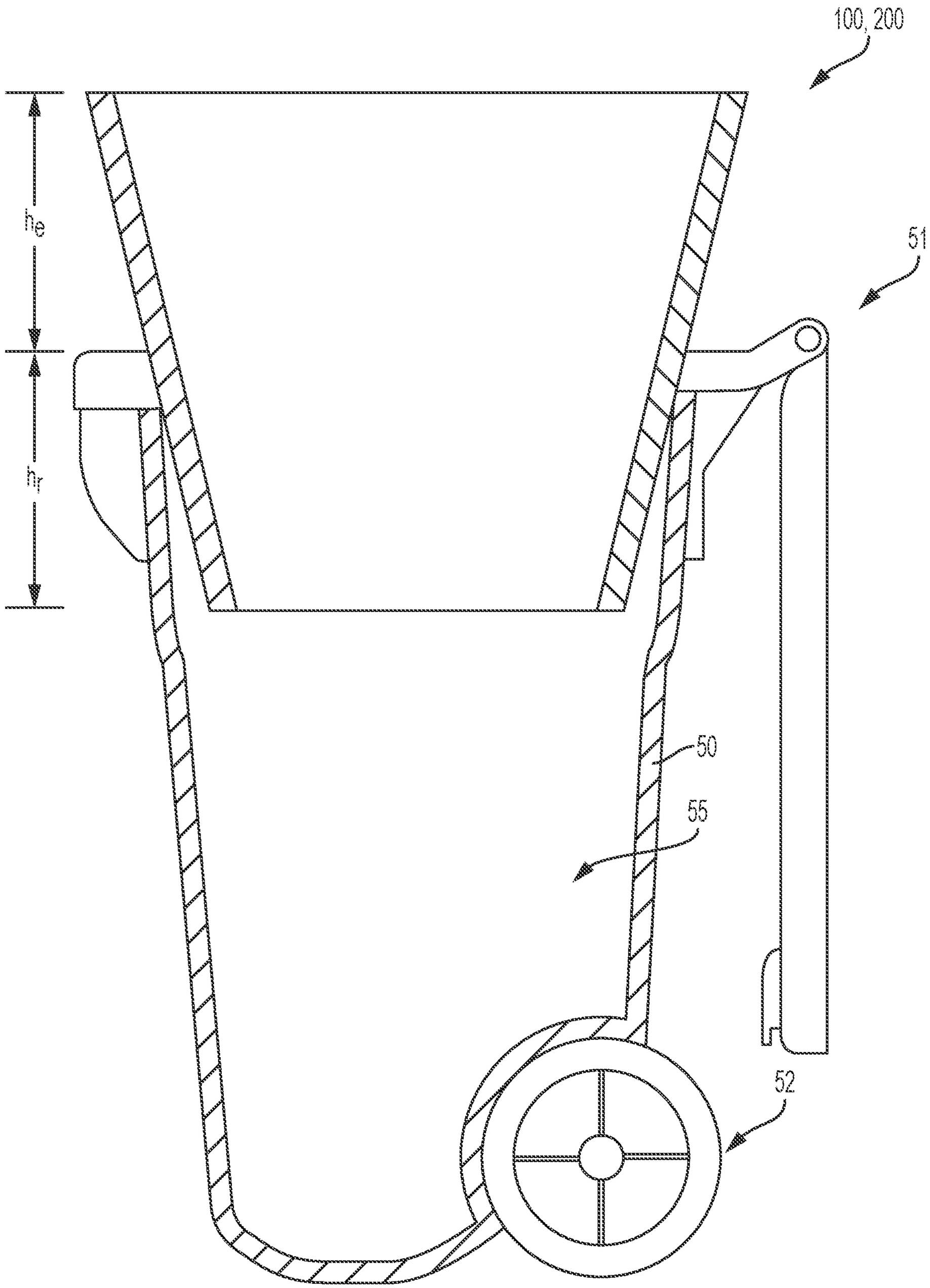

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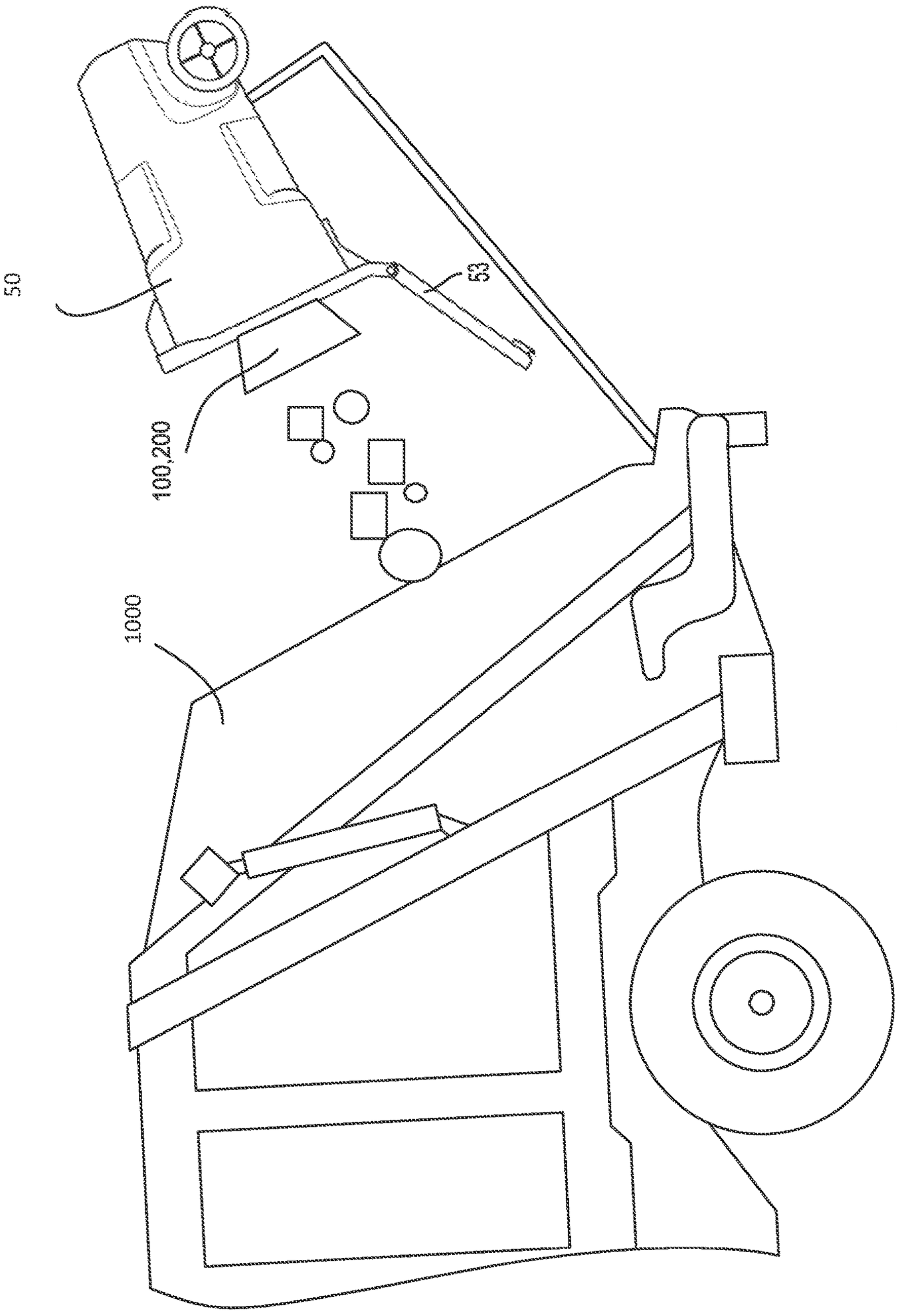

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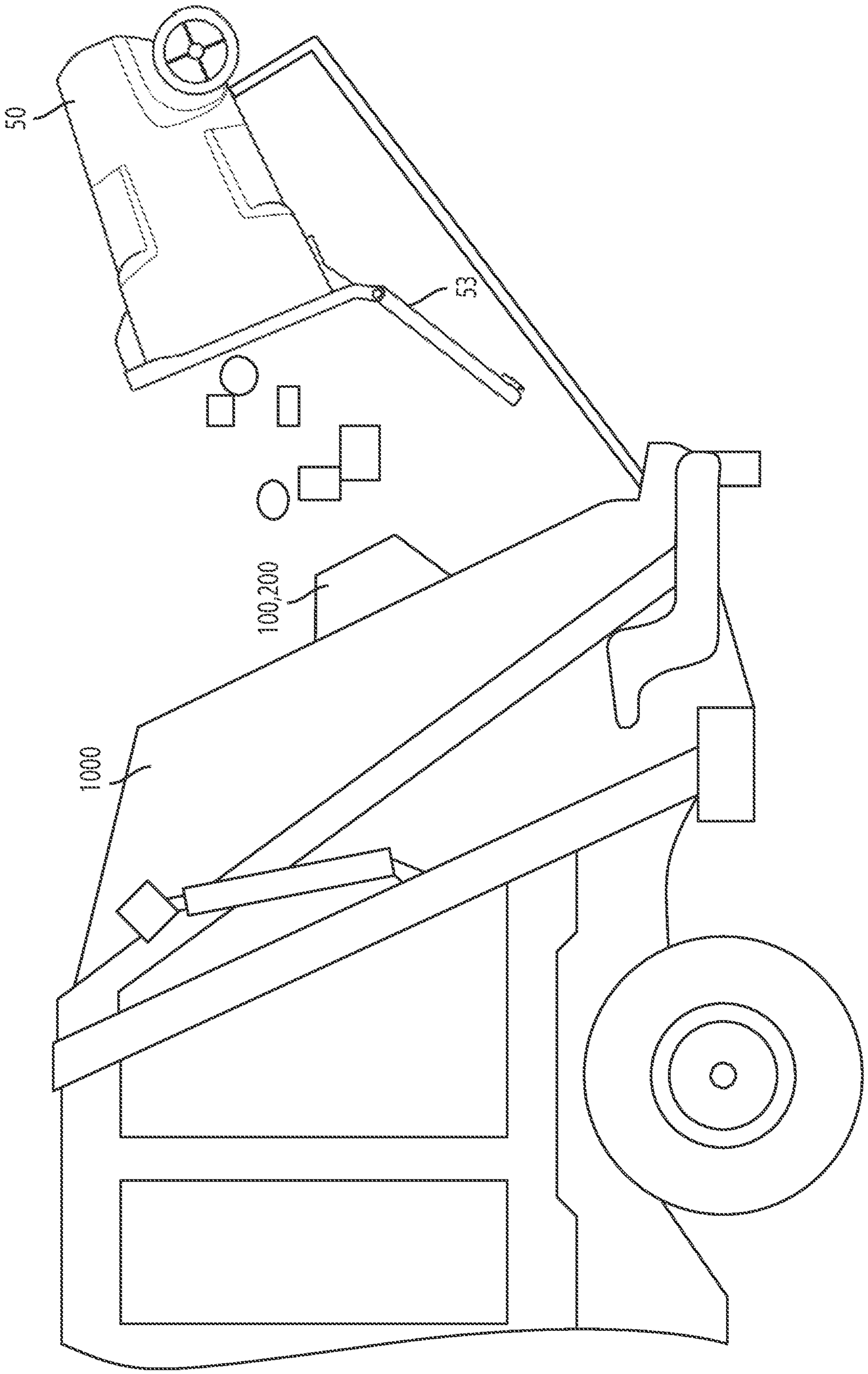

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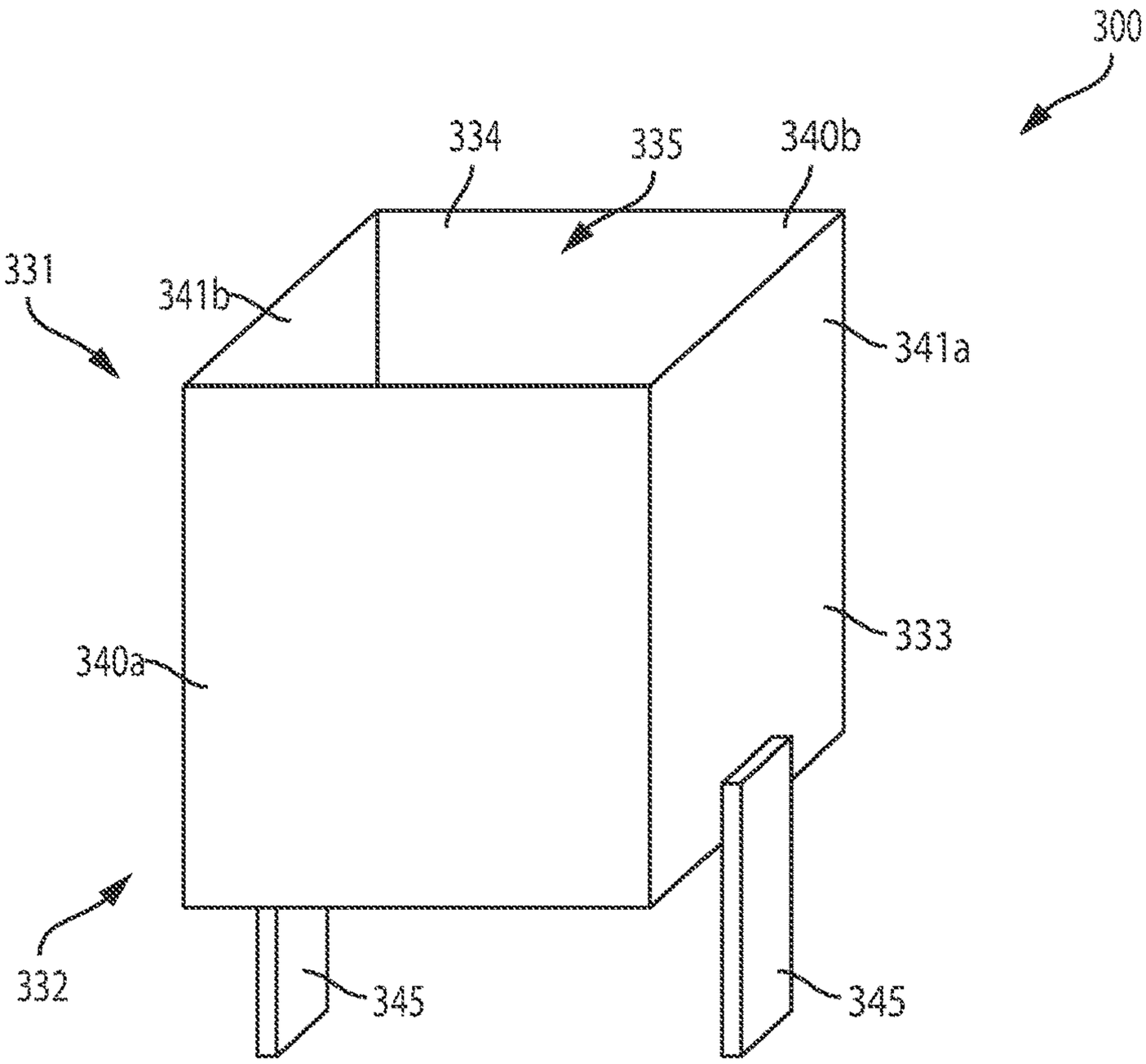
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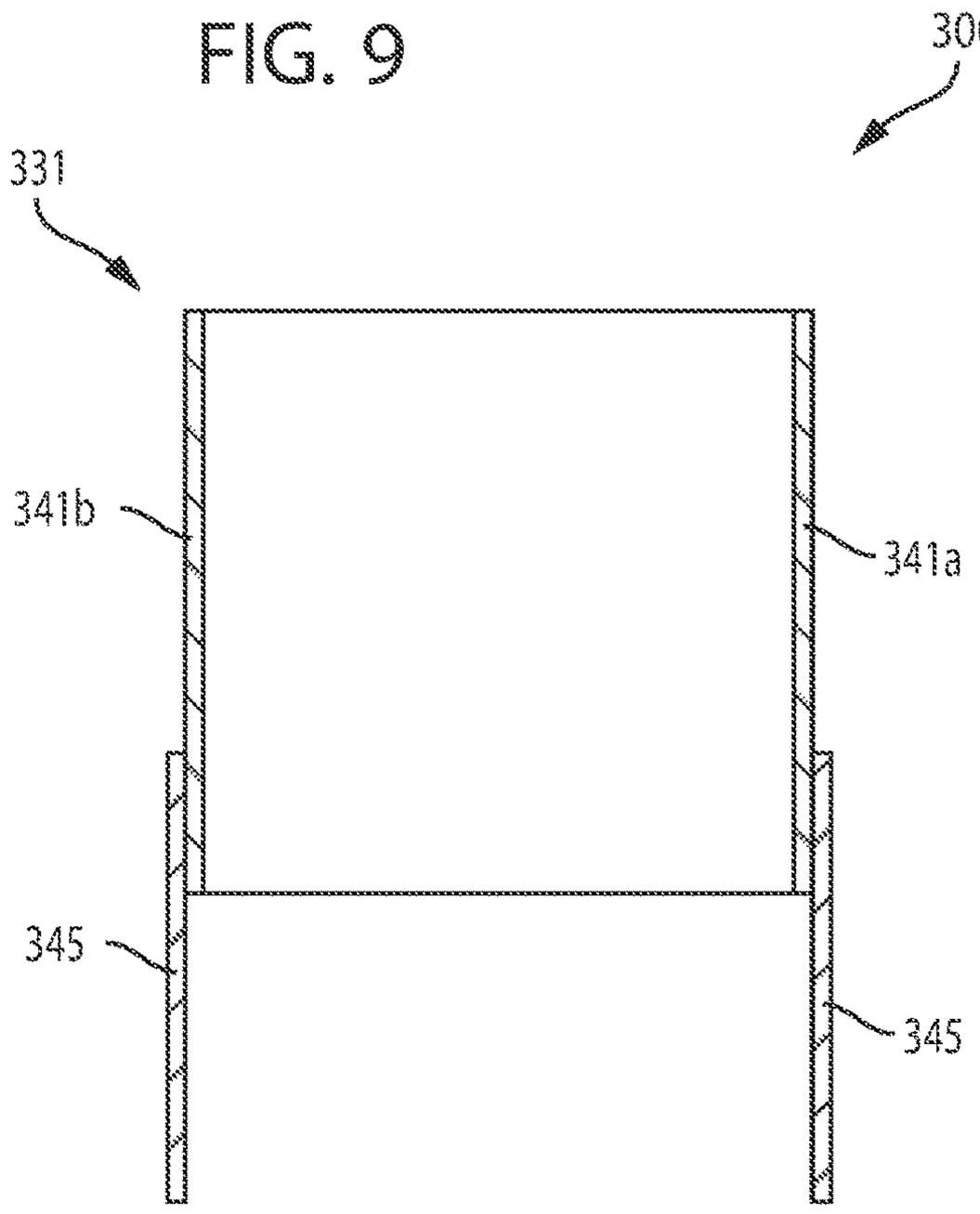
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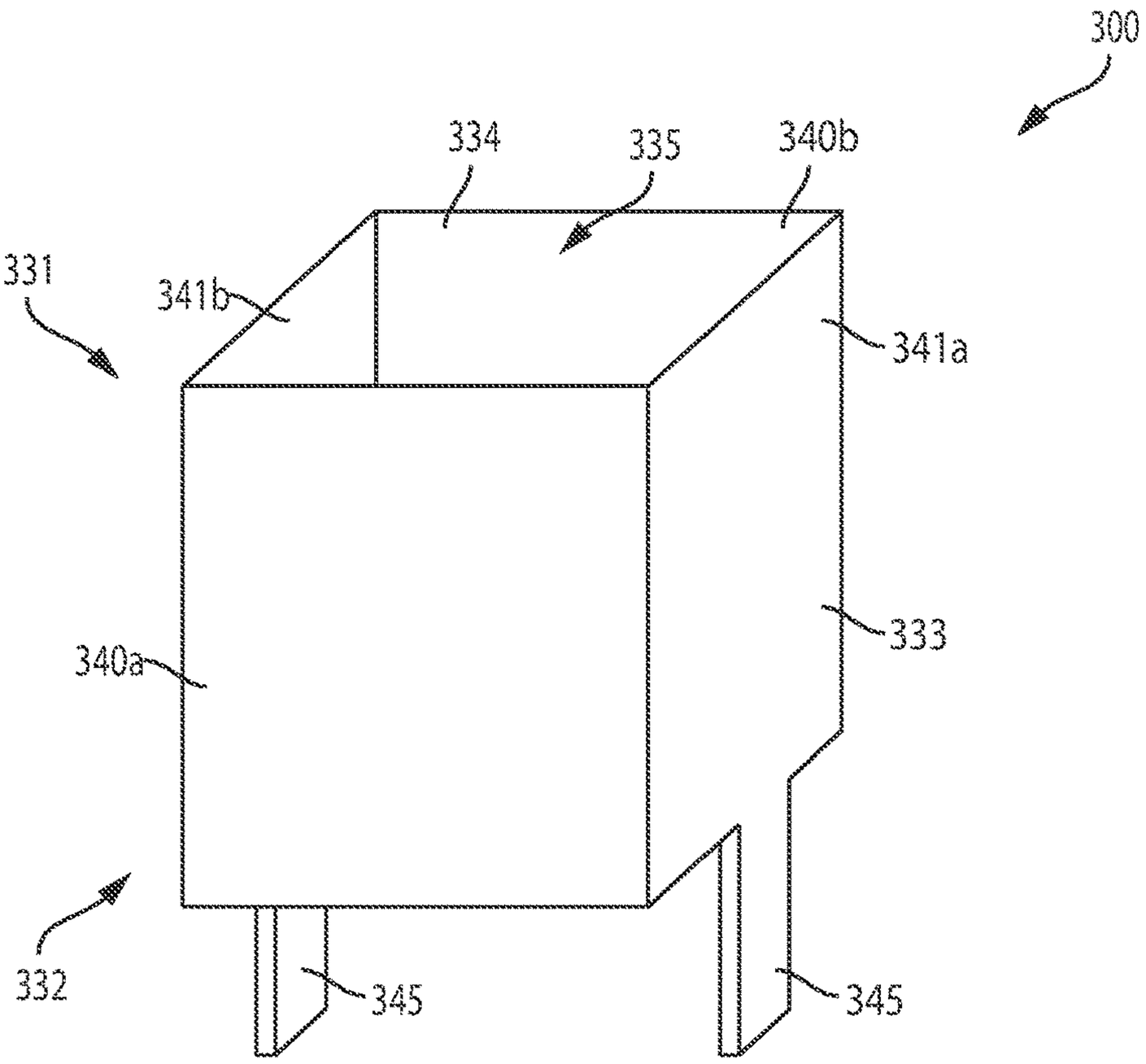
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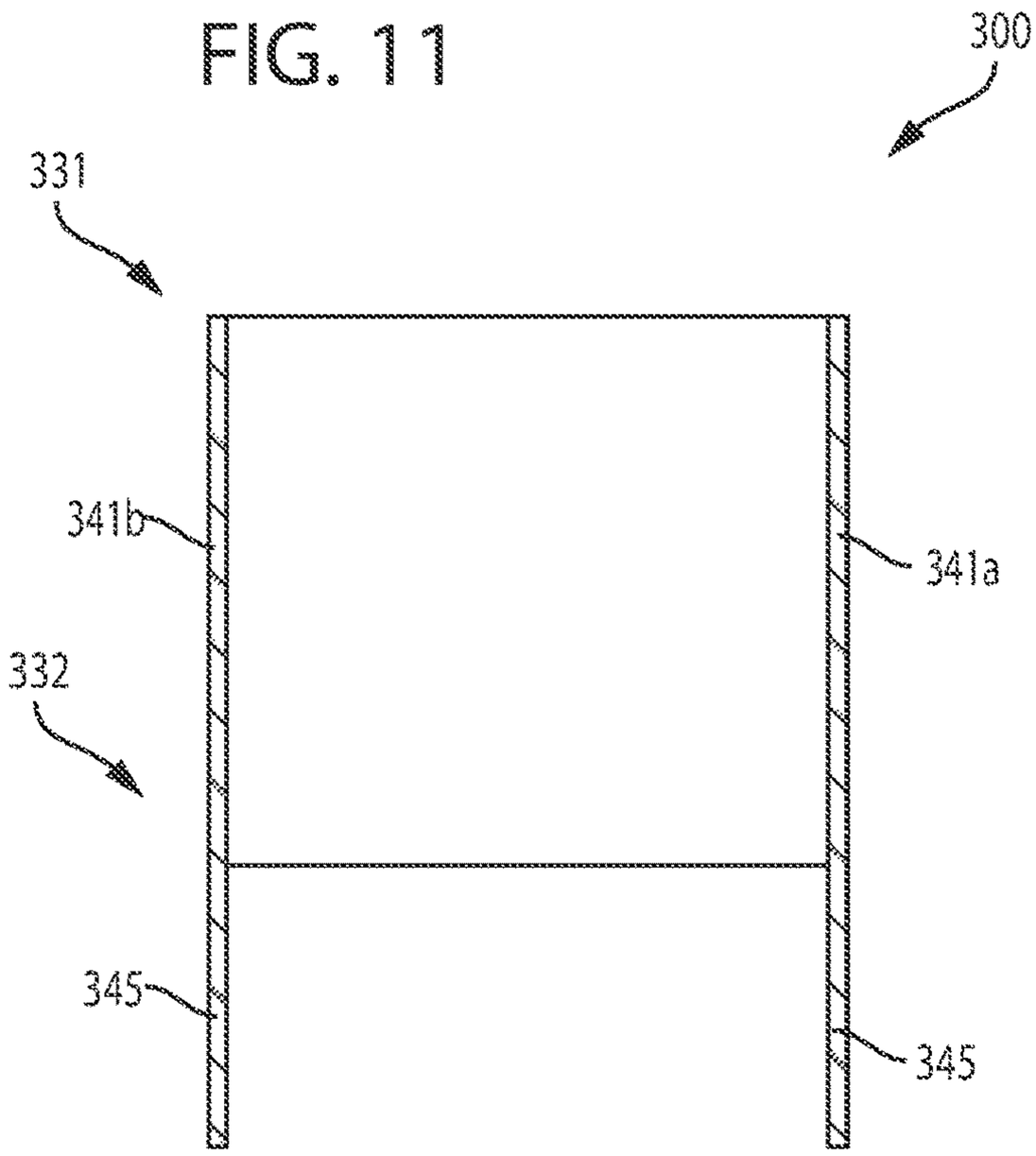
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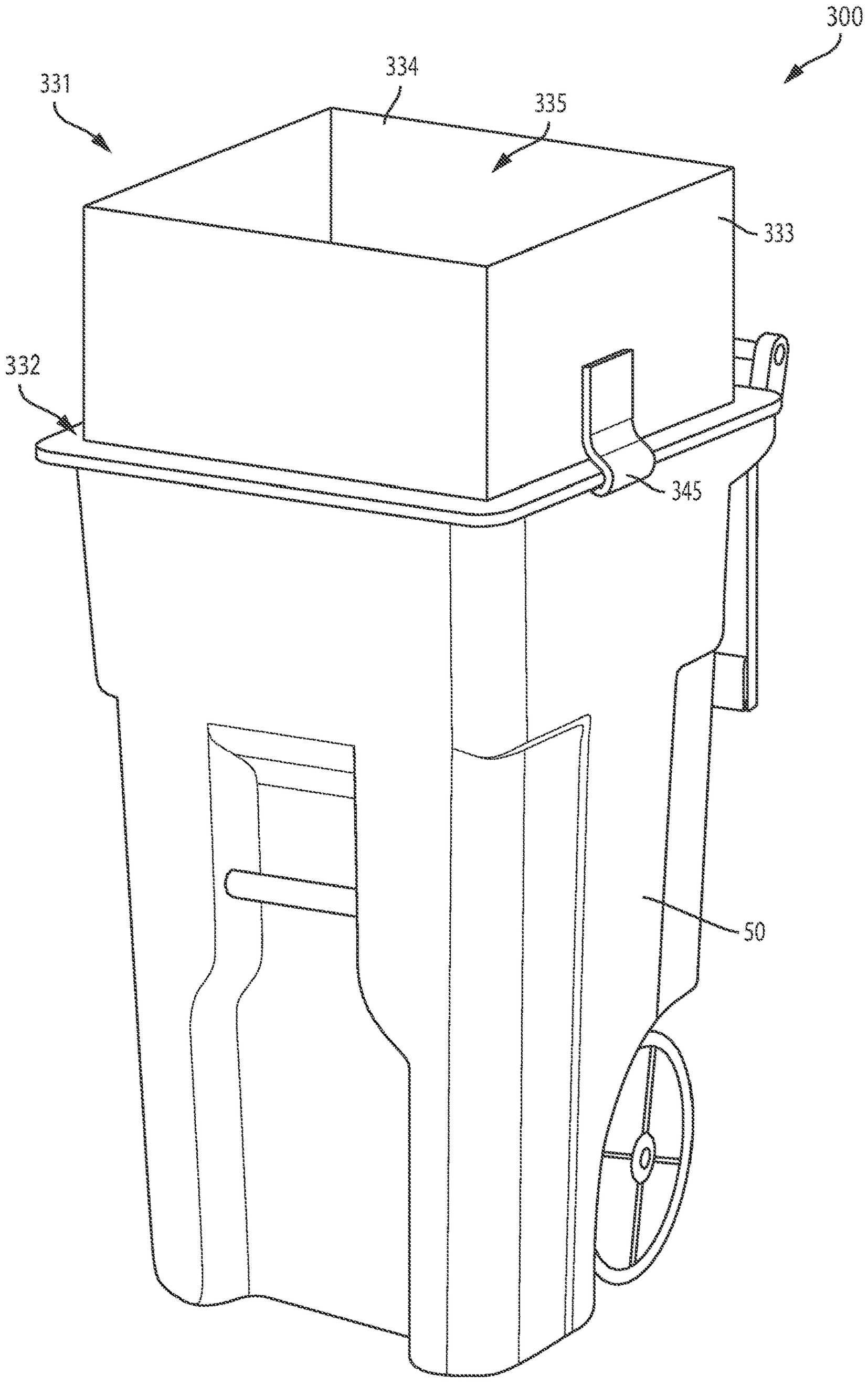

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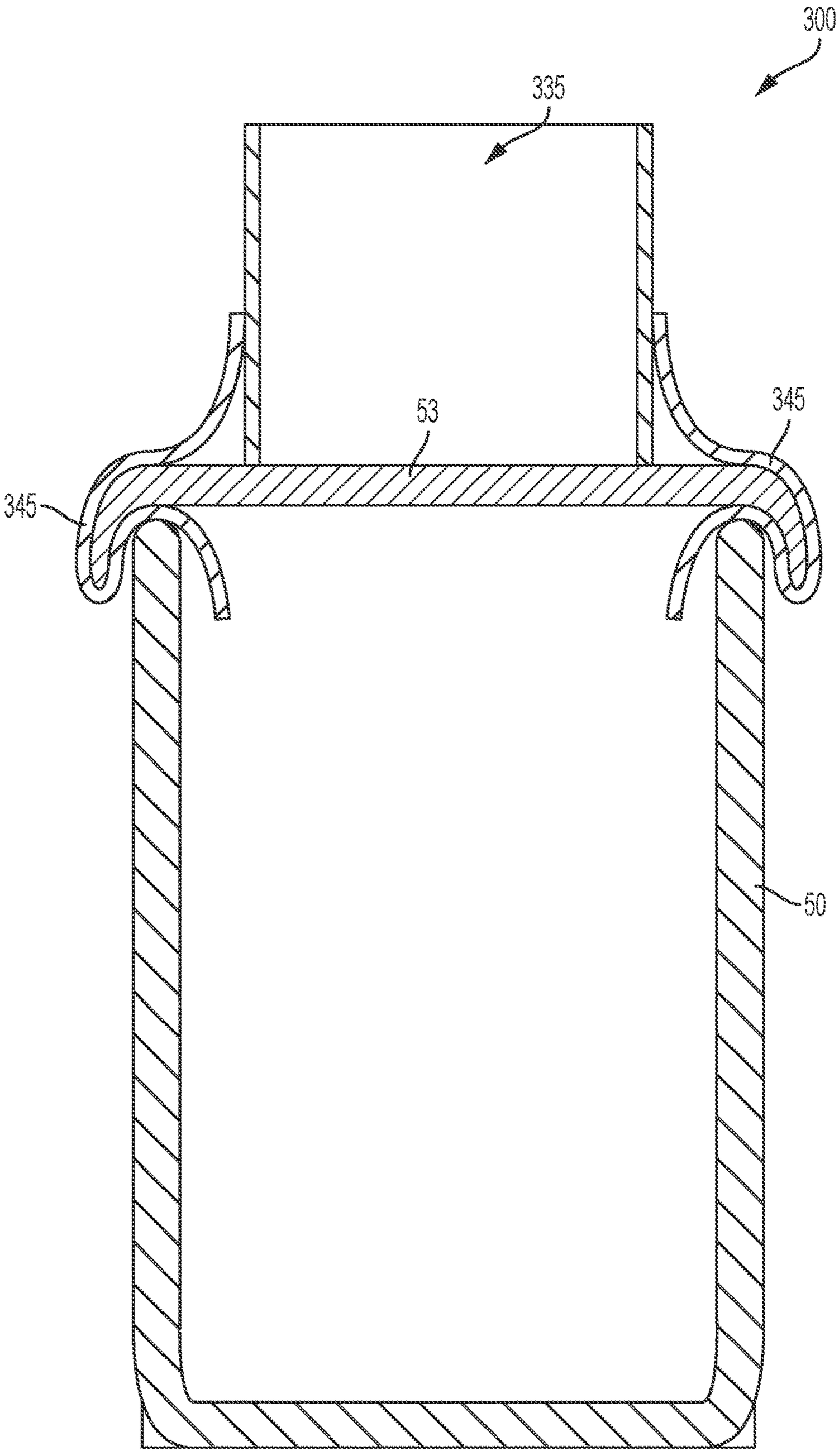

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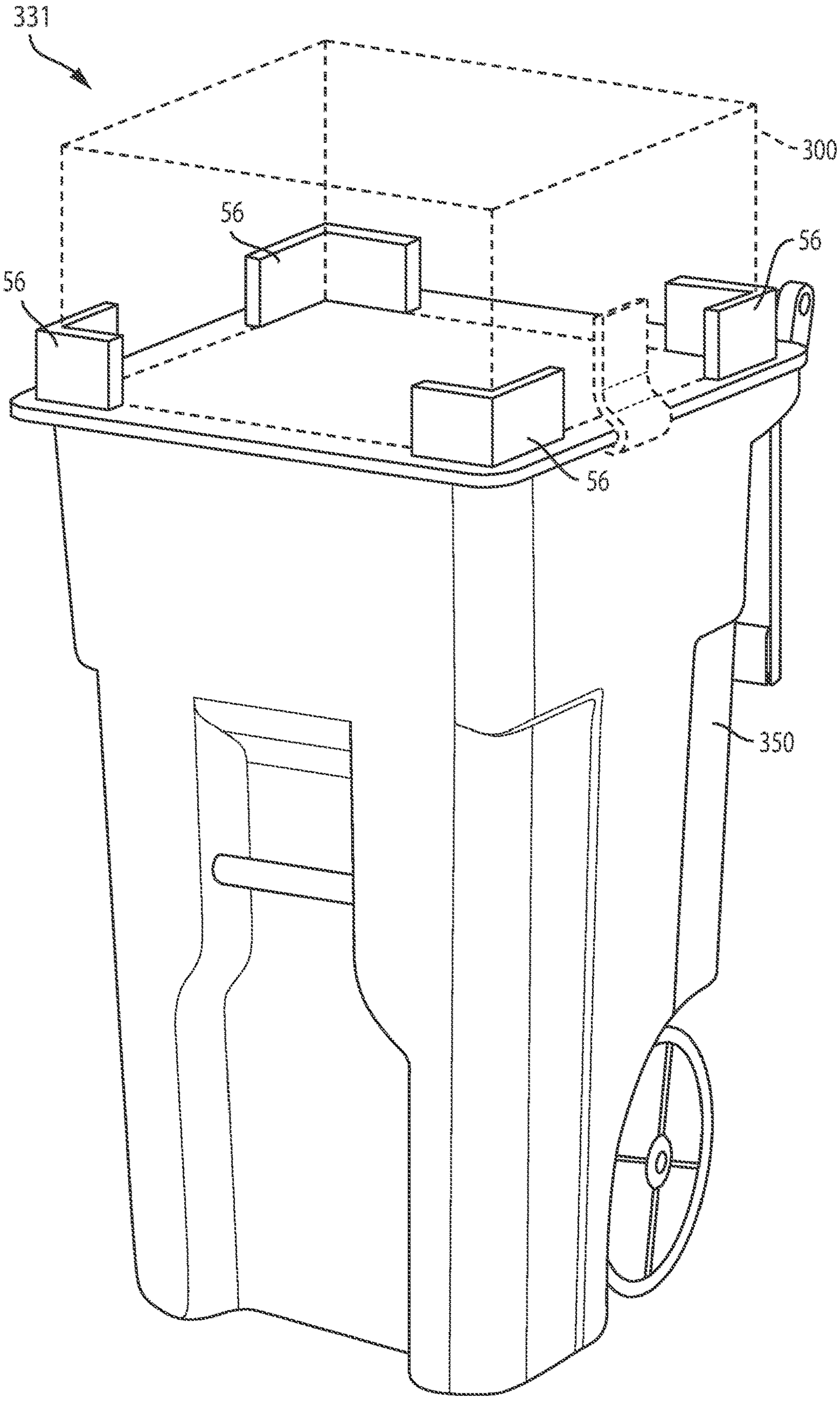

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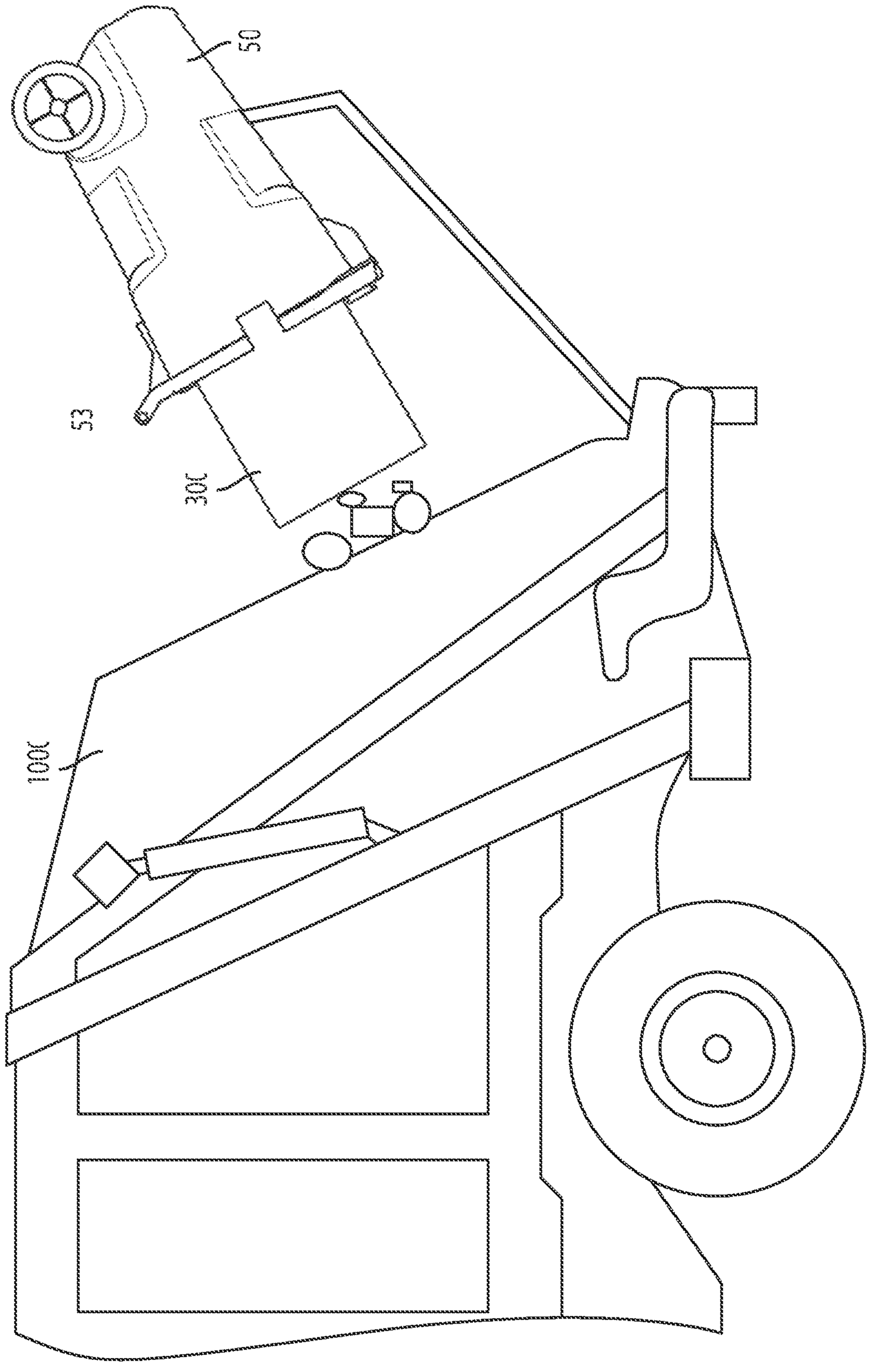

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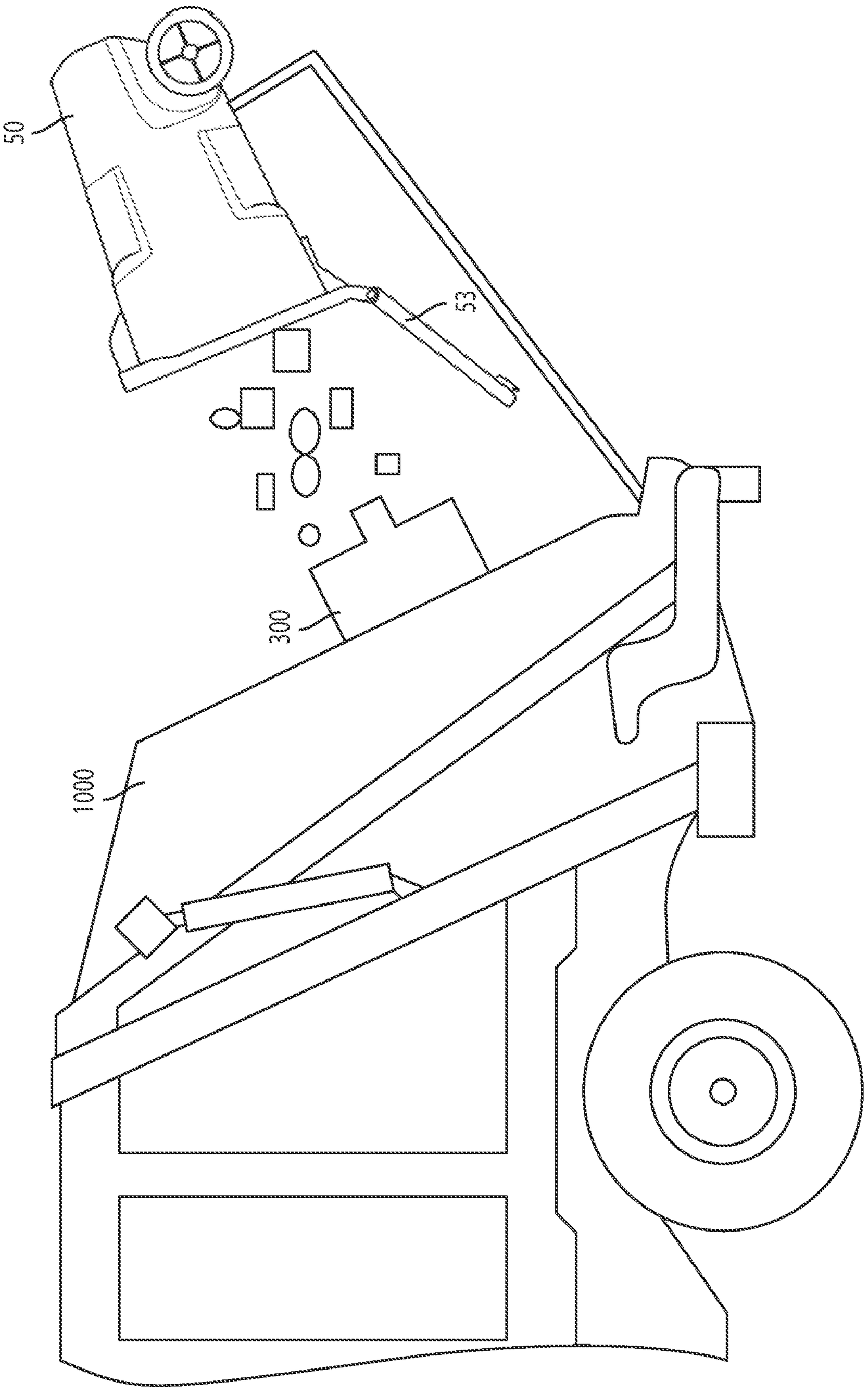

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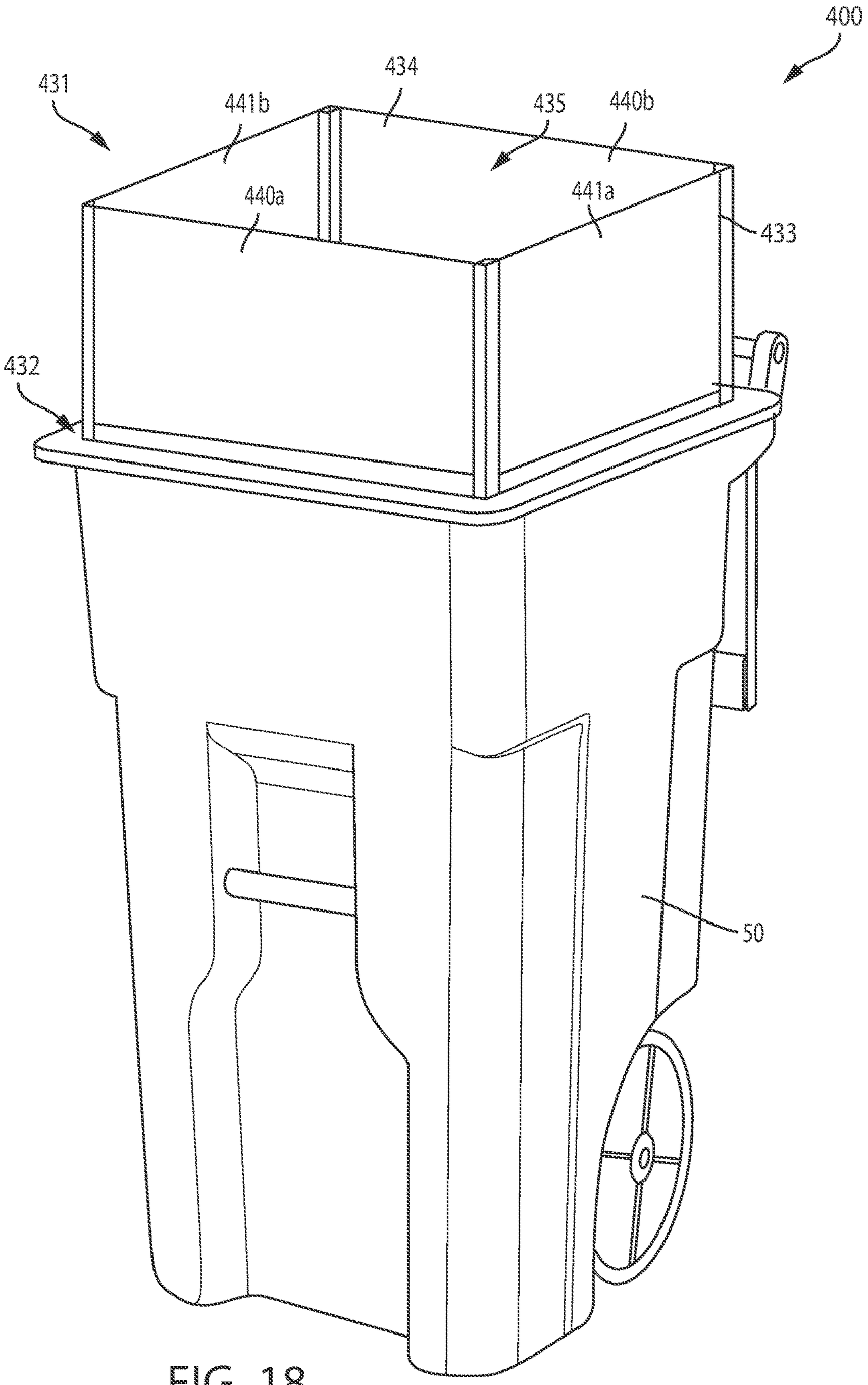

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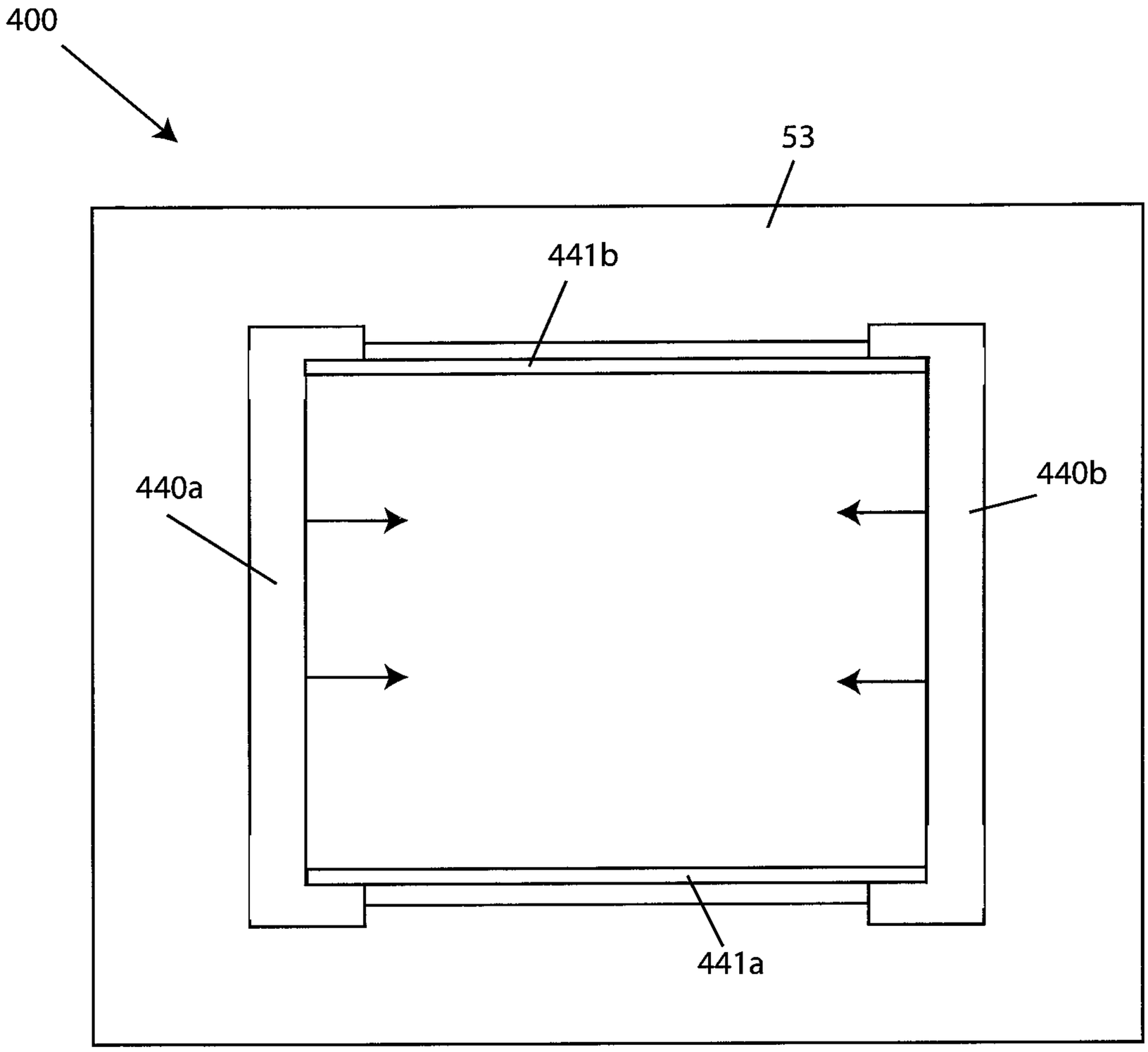


FIG. 19

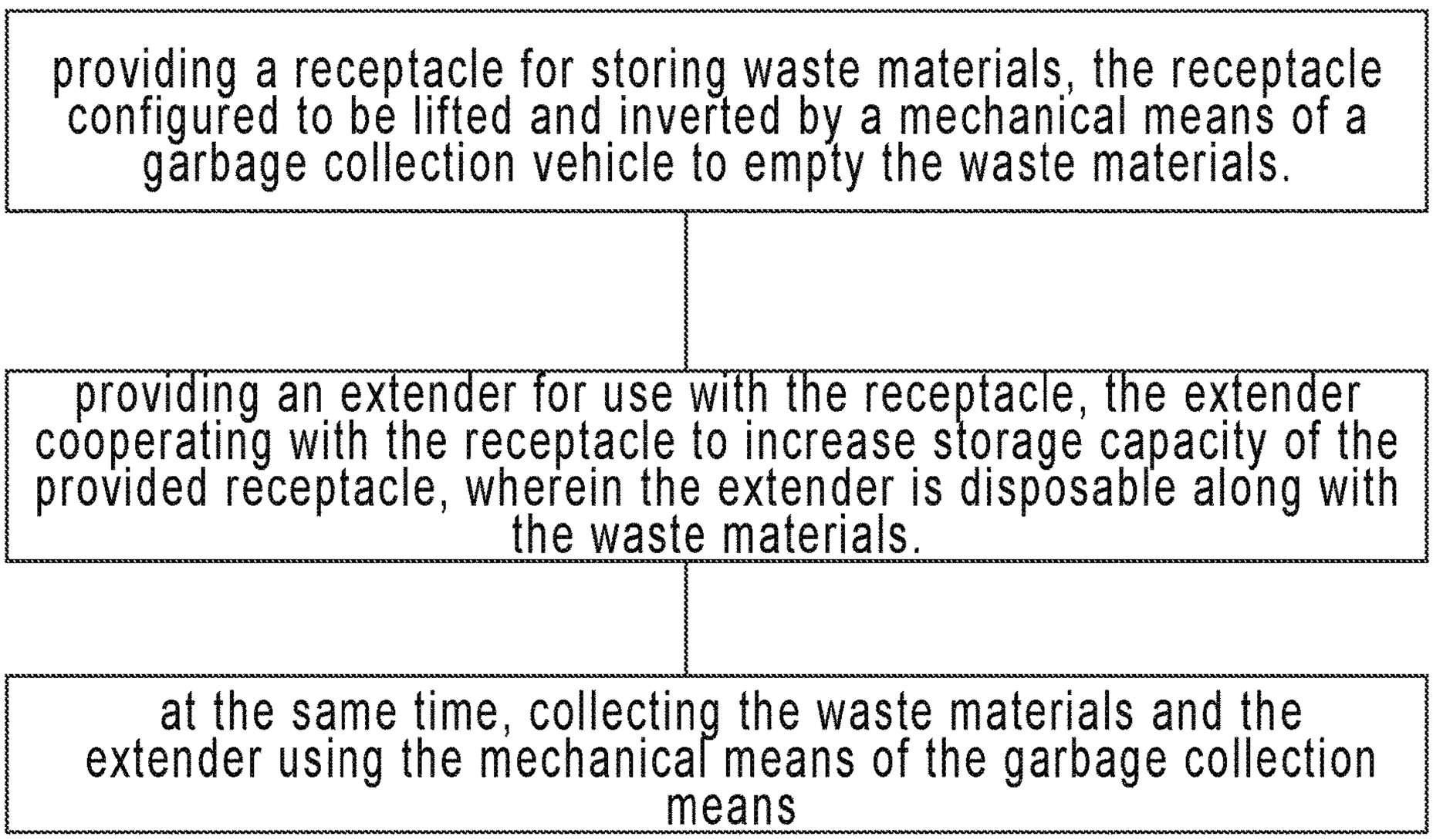
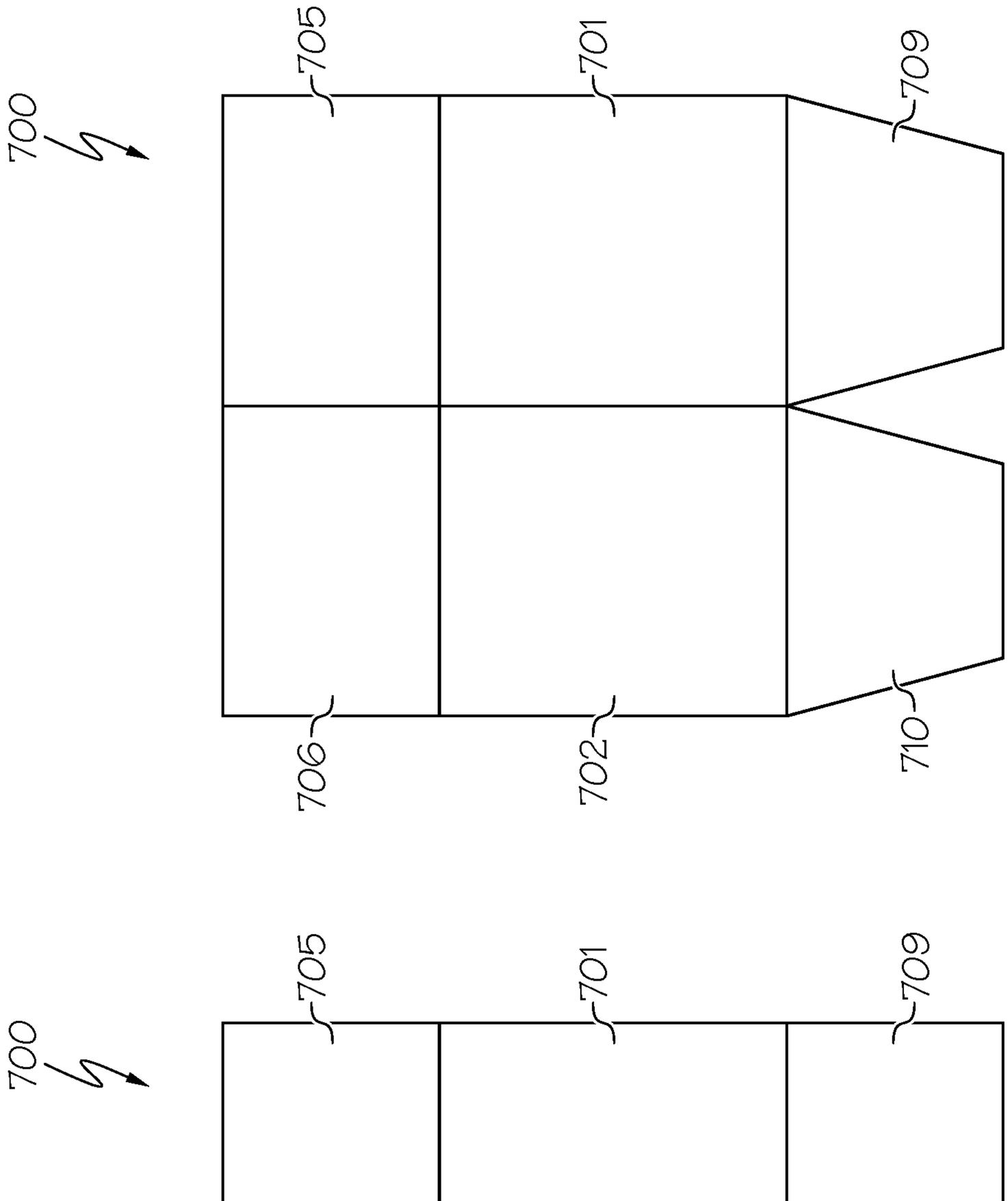

providing a receptacle for storing waste materials, the receptacle configured to be lifted and inverted by a mechanical means of a garbage collection vehicle to empty the waste materials.
providing an extender for use with the receptacle, the extender cooperating with the receptacle to increase storage capacity of the provided receptacle, wherein the extender is disposable along with the waste materials.
at the same time, collecting the waste materials and the extender using the mechanical means of the garbage collection means

FIG. 20



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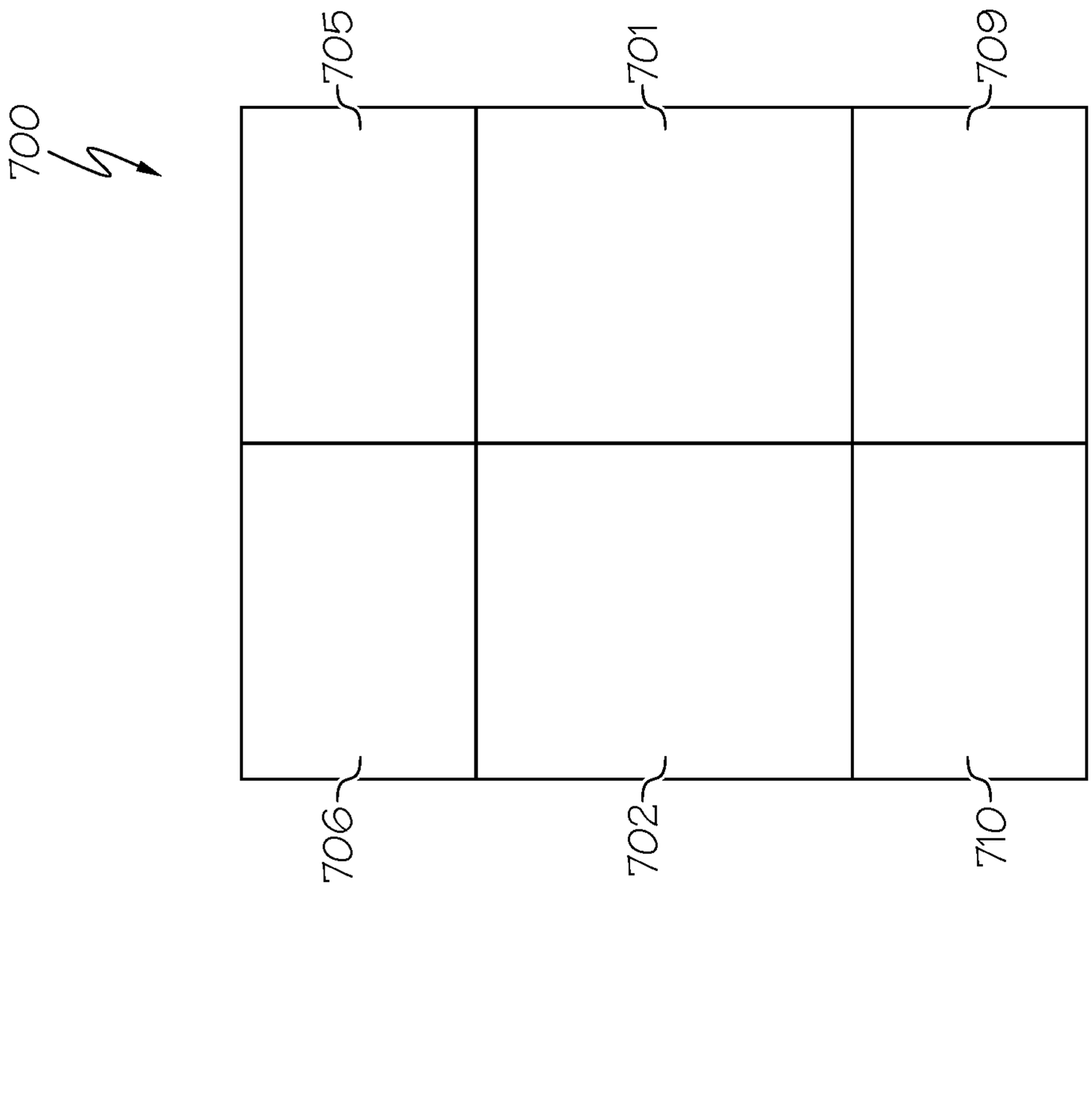

FIG. 21

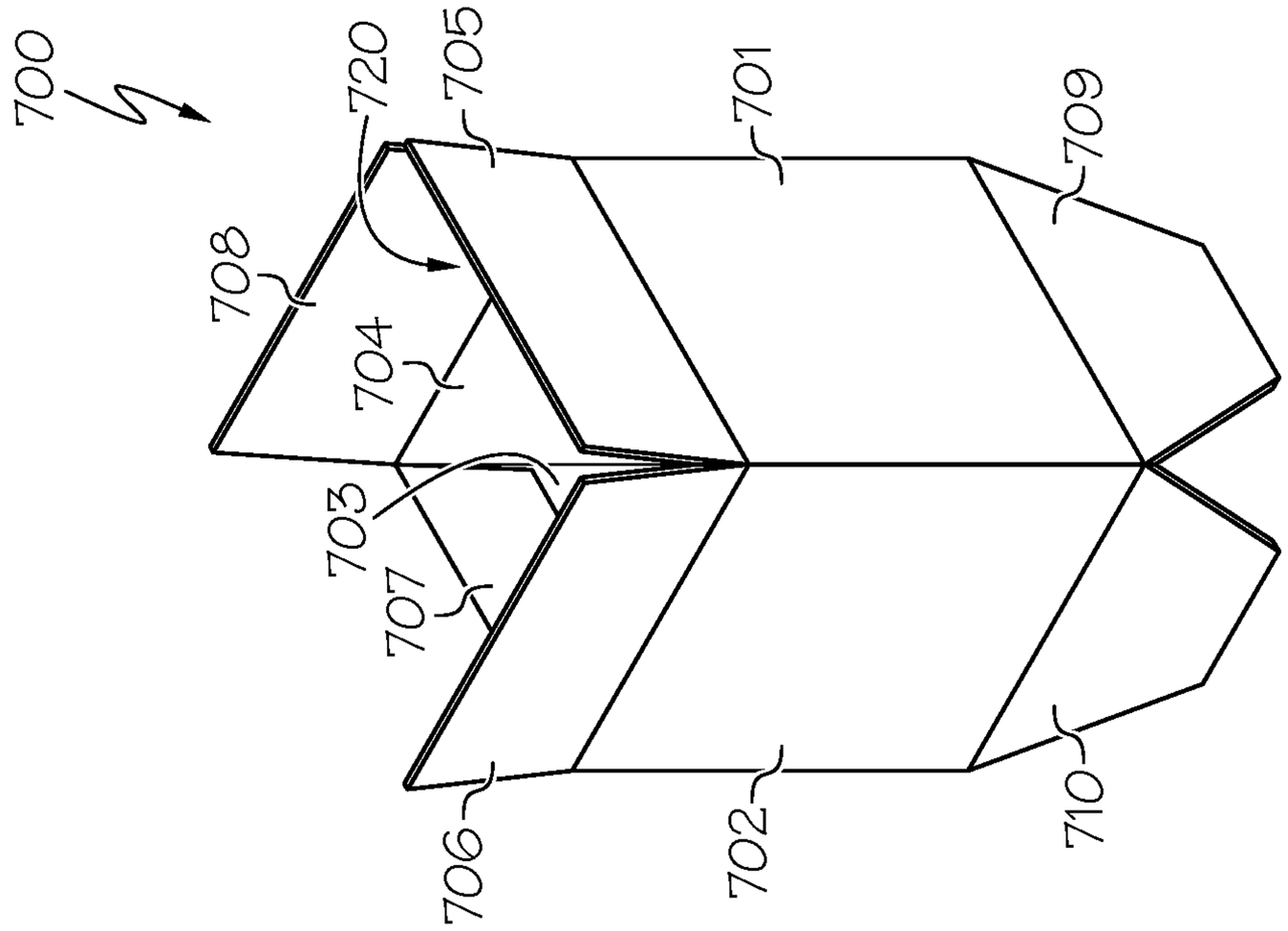
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FIG. 24

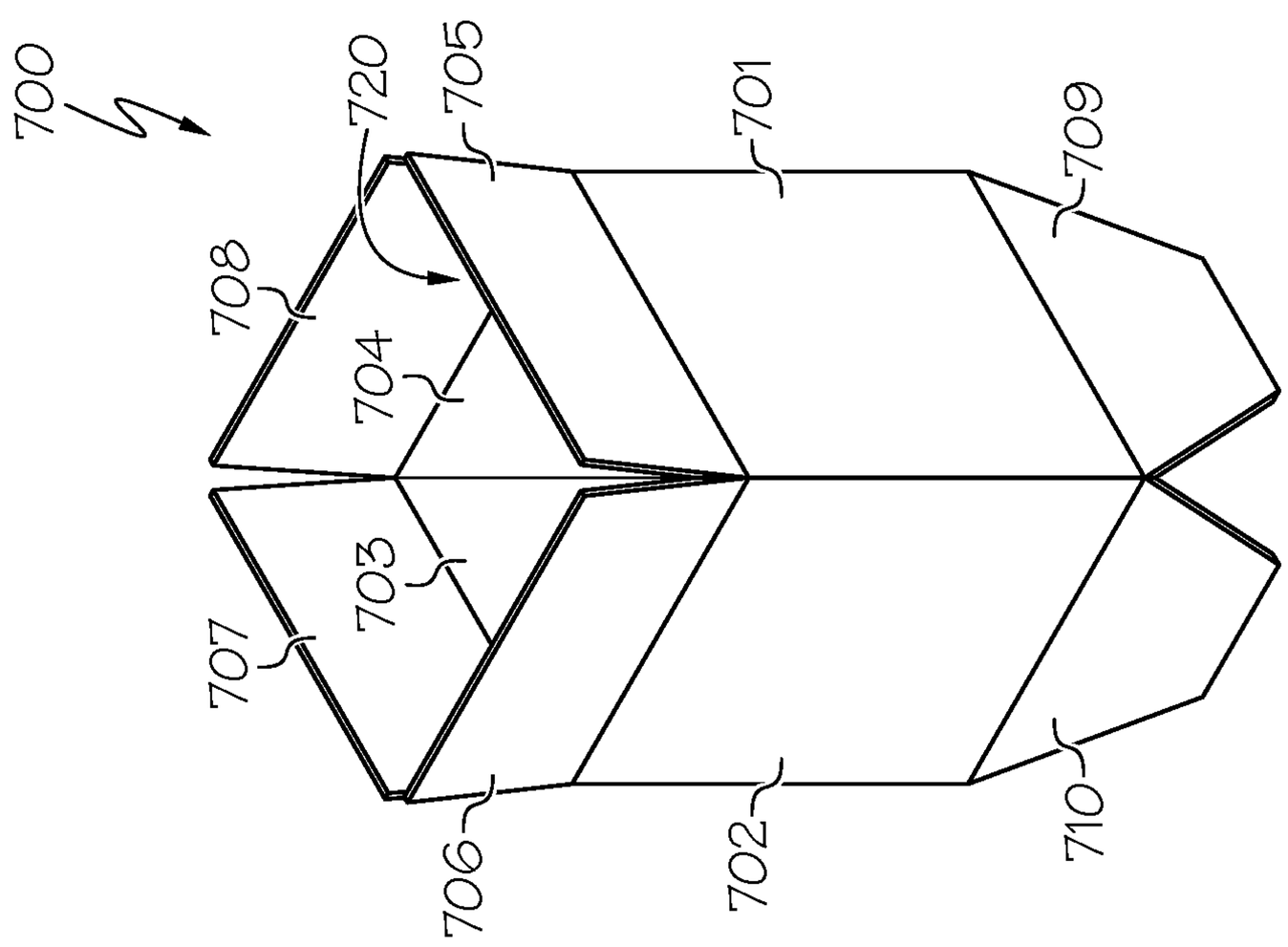
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FIG. 23

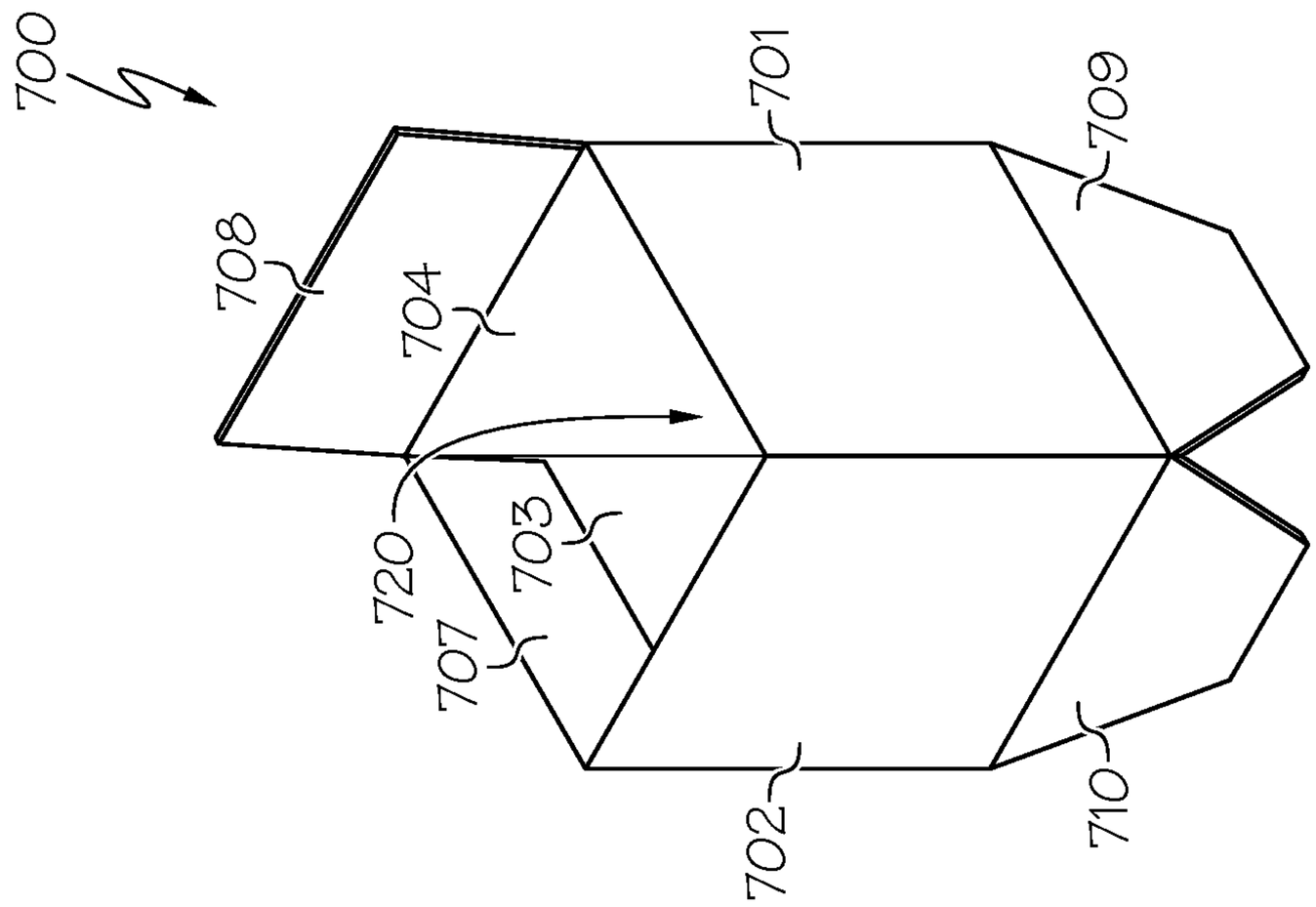
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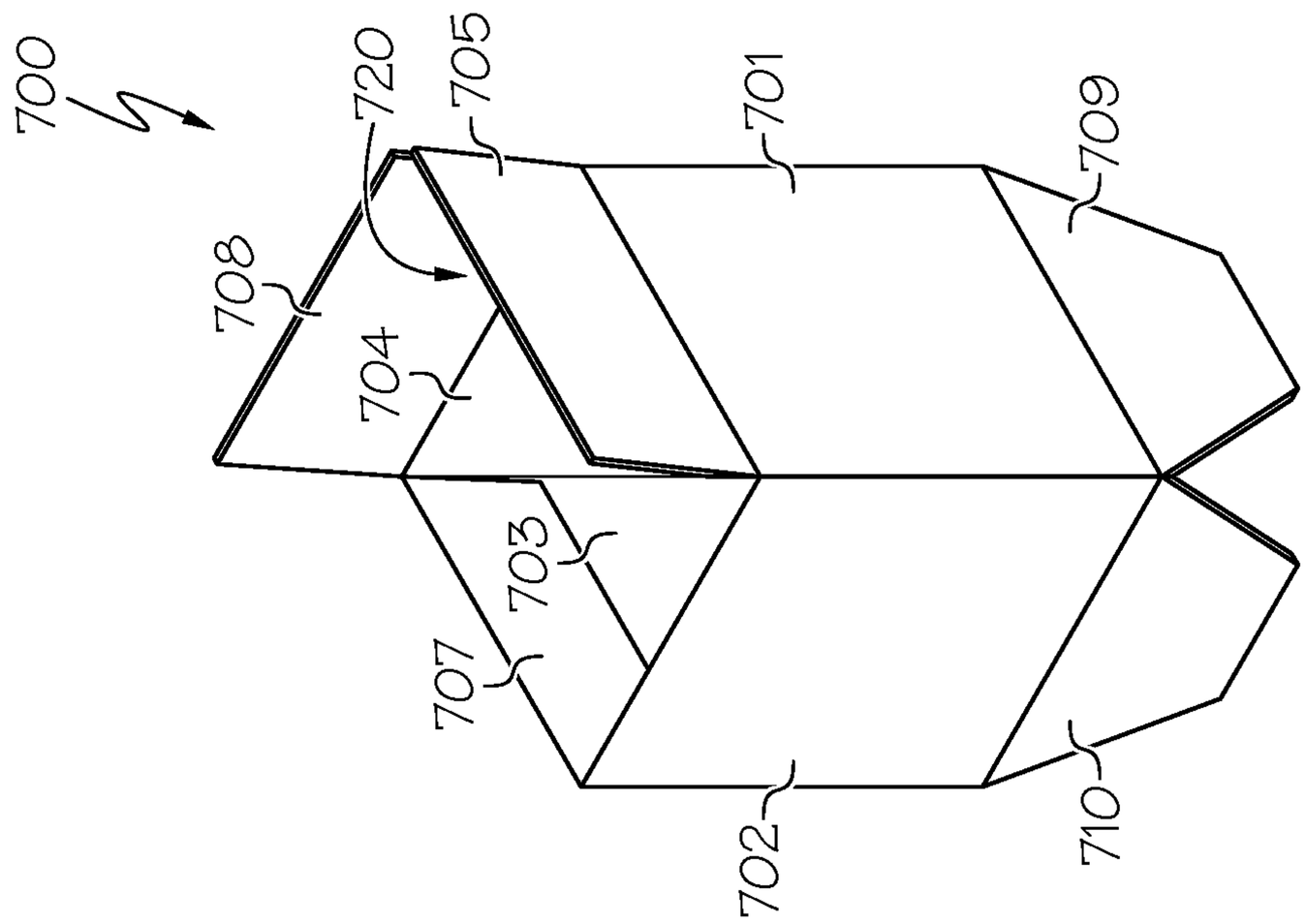
FIG. 26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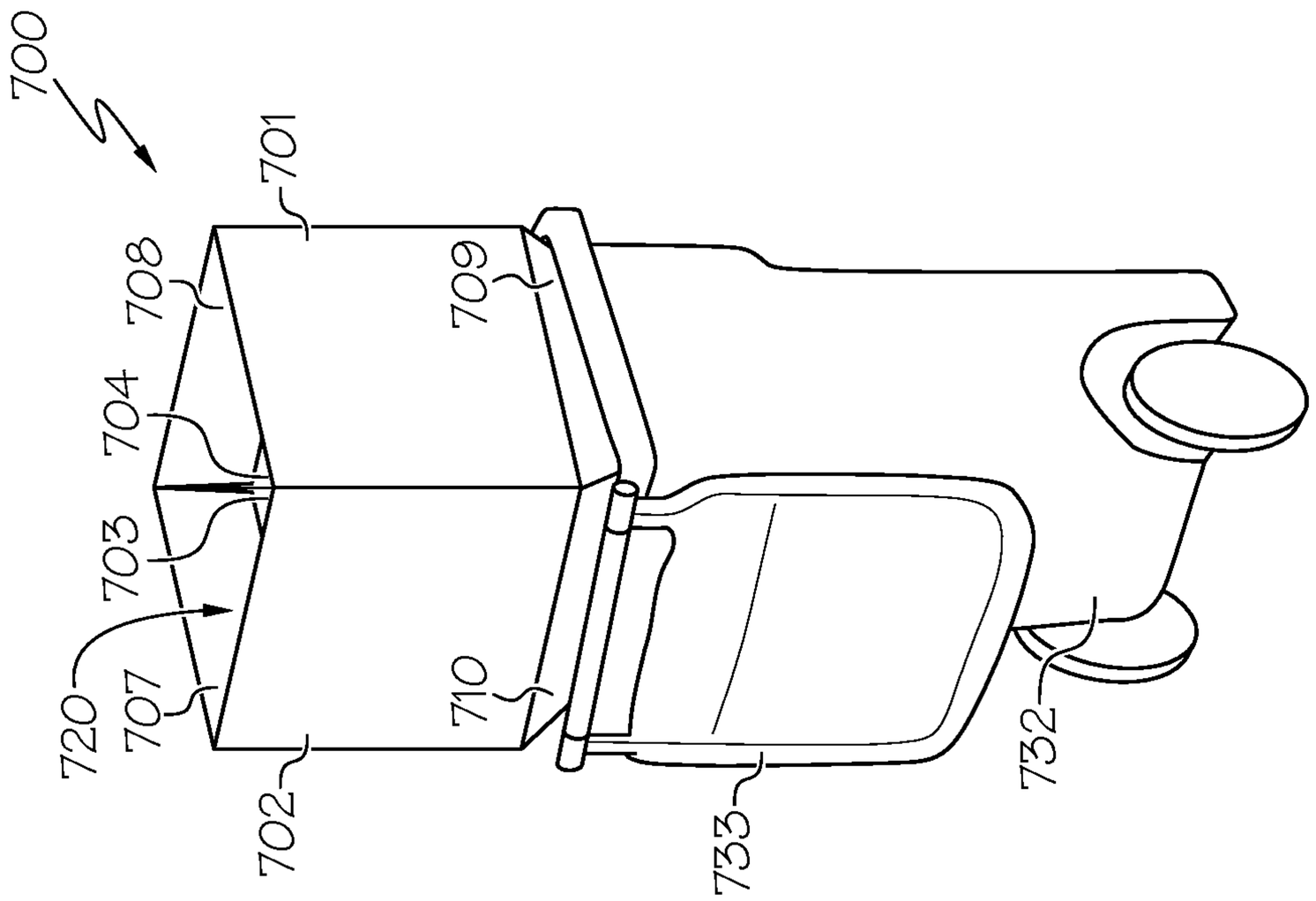
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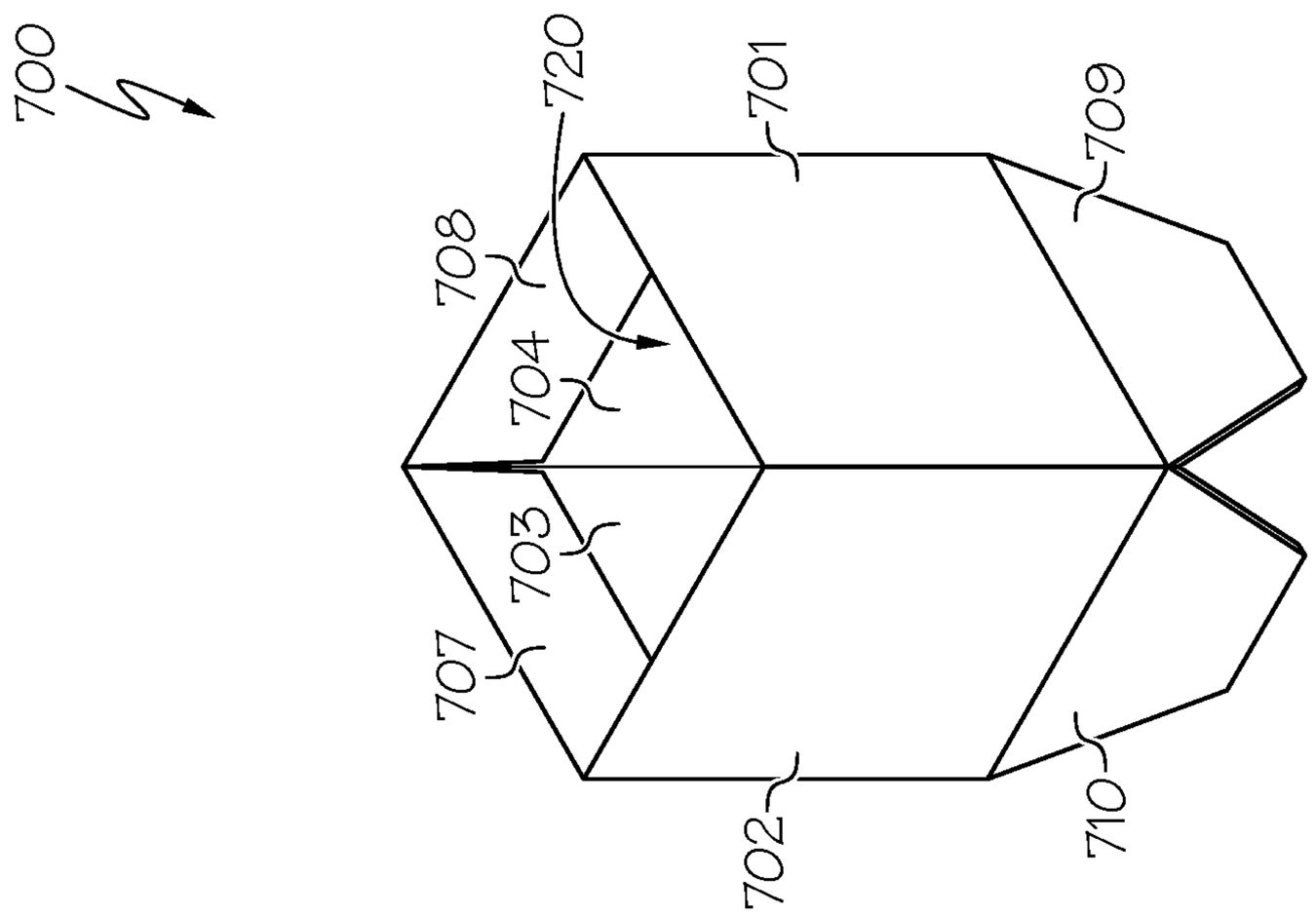
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FIG. 27

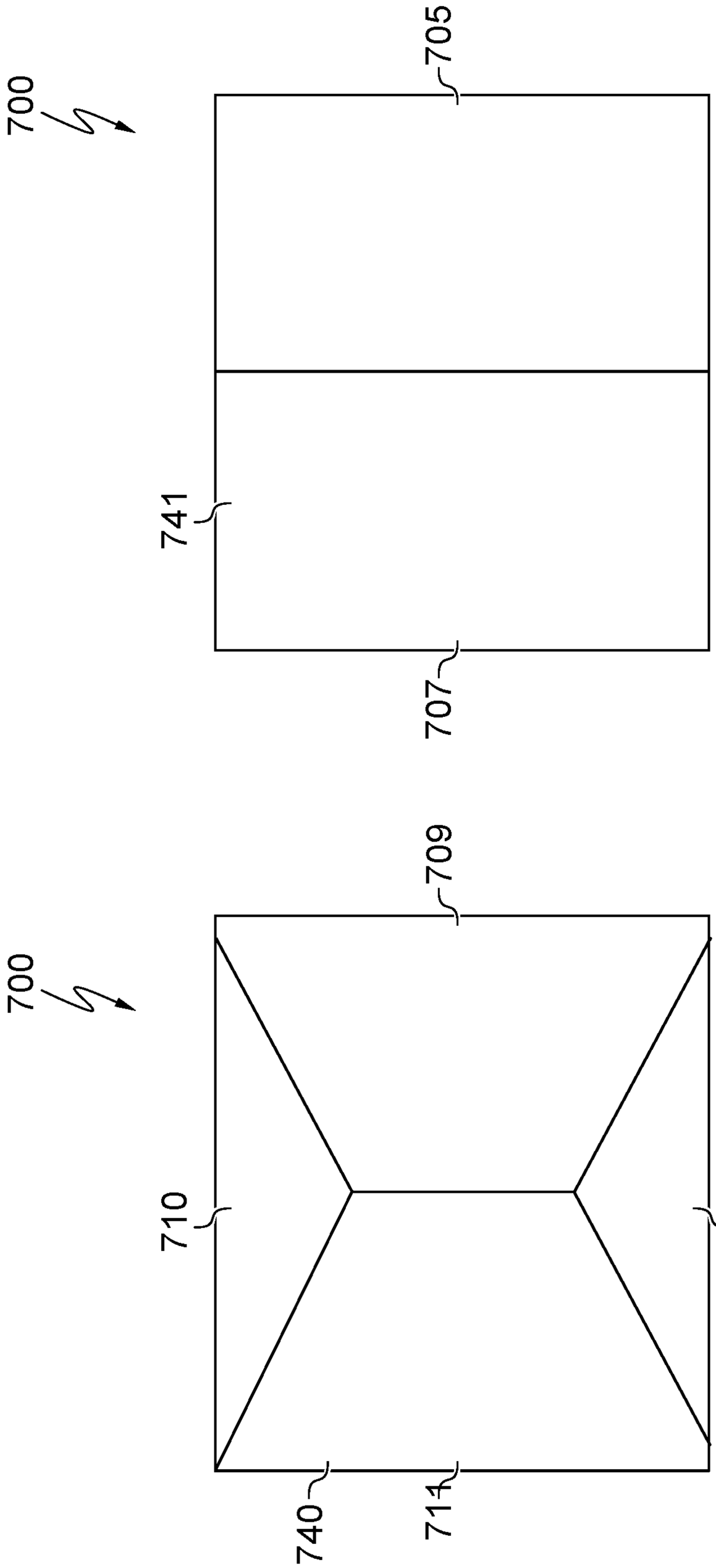

FIG. 30

FIG. 29

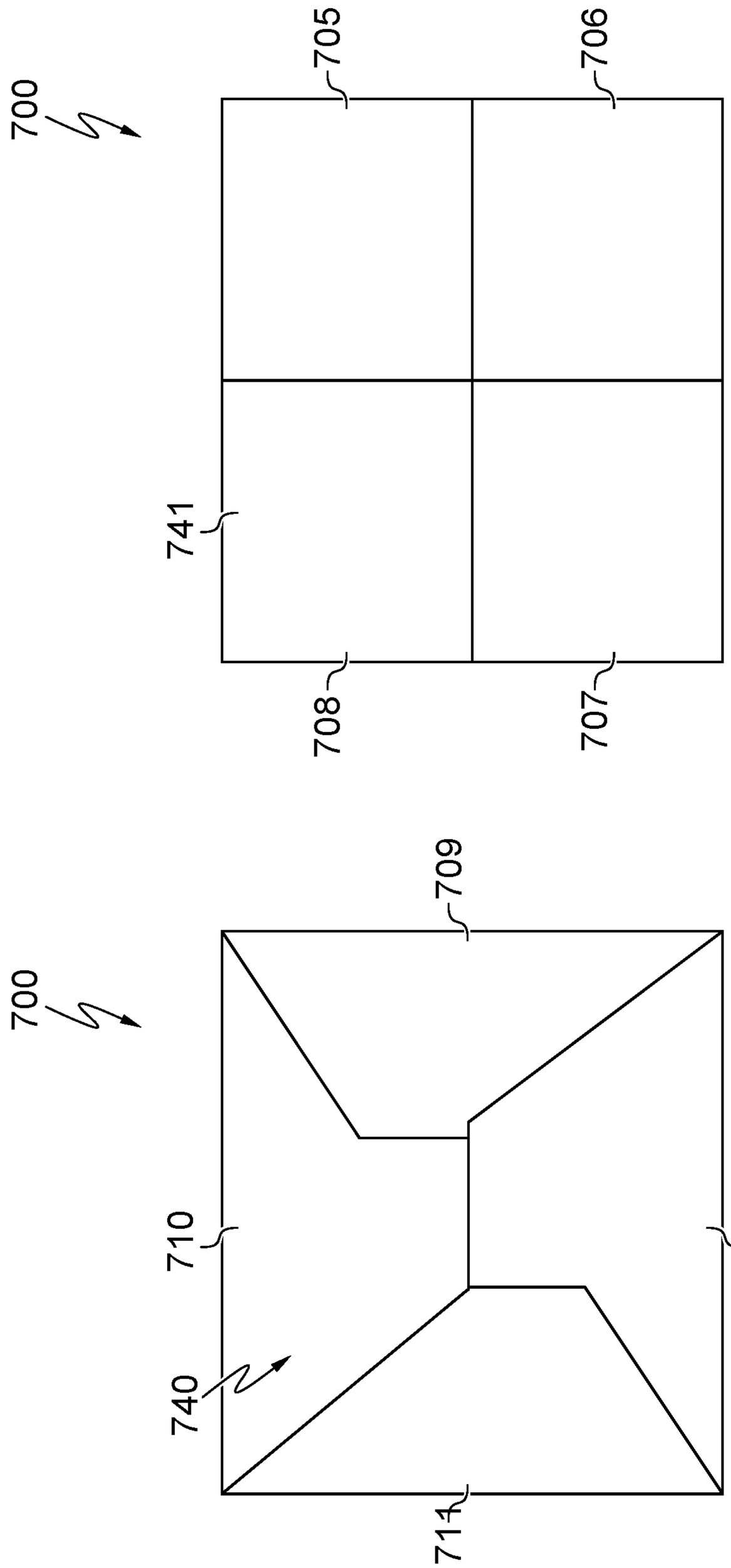

FIG. 31

FIG. 32

TRANSFORMATIVE EXTENDER AND METHOD THEREOF

FIELD OF TECHNOLOGY

The following relates to waste management disposal and containment, and more specifically to embodiments of a device that can increase the capacity of a standard receptacle, while also making garbage collection more efficient.

BACKGROUND

Receptacles, such as garbage cans, typically come in standard sizes. In some households, the standard capacity of the garbage is exceeded before the garbage pickup is scheduled to come. This is especially true when a household hosts a party or an event that results in a larger than normal amount of garbage. The current solution is to stack the garbage next to the garbage can, or purchase an additional garbage can. Stacking the garbage next to the garbage perpetuates an odorous environment, is aesthetically unappealing, and adds labor time for the garbage collectors. Purchasing an additional garbage takes up extra space, can lead to additional charges from a garbage collection company, and may not be compatible with automated garbage trucks.

Additionally, it is often the case that a person needs to store temporarily or permanently, personal, household, or other objects, especially when moving between living areas. A person often needs to dispose of objects from their home or office or other location. However, obtaining multiple containers for storing and disposing of objects and materials can be costly and take up space.

Thus, a need exists for an apparatus and method for increasing a capacity of a receptacle, storing an additional amount of garbage, containing and disposing of objects with a single apparatus, and a method of disposal.

SUMMARY

A first aspect relates generally to a box configured to be transformed to include a tapered structure configured such that when the transformed box is inserted into the receptacle, the tapered structure provides a universal fit.

A second aspect relates generally to an apparatus comprising a first plurality of walls, wherein the first plurality of straight walls defines an interior space between the first plurality of walls; and a second plurality of walls adjacent to the first plurality of walls, the second plurality of walls forming a tapered section of the apparatus that extends inwardly with respect to the first plurality of walls.

A third aspect relates generally to a method for collecting waste materials, the method comprising providing a receptacle for storing waste materials; providing a box configured to be transformed to include a tapered structure configured such that when the transformed box is inserted into the receptacle, the tapered structure provides a universal fit; and disrupting the receptacle such that the transformed box disengages with the receptacle and exits the receptacle.

A fourth aspect relates generally to an extender for a waste receptacle comprising a first wall comprising a first top edge, a first bottom edge, a first side edge, and a second side edge; a second wall comprising a second top edge, a second bottom edge, a third side edge, and a fourth side edge; a third wall comprising a third top edge, a third bottom edge, a fifth side edge, and a sixth side edge; a fourth wall comprising a fourth top edge, a fourth bottom edge, a seventh side edge, and a eighth side edge; wherein the first side edge abuts the eighth side edge to form a first corner; wherein the second side edge abuts the third side edge to form a second corner; wherein the fourth side edge abuts the fifth side edge to form a third corner; wherein the sixth side edge abuts the seventh side edge to form a fourth corner; a first top extension extending from the first top edge; wherein a width of the first top extension extends between the first corner and the second corner; a second top extension extending from the second top edge; wherein a width of the second top extension extends between the second corner and the third corner; a third top extension extending from the third top edge; wherein a width of the third top extension extends between the third corner and the fourth corner; a fourth top extension extending from the fourth top edge; wherein a width of the fourth top extension extends between the fourth corner and the first corner; a first bottom extension extending from the first bottom edge to a first bottom extension edge; wherein the first bottom extension has a first taper extending from the first bottom edge proximate to the first corner to the first bottom extension edge and a second taper extending from the first bottom edge proximate to the second corner to the first bottom extension edge such that a width of the first bottom extension edge is less than a width of the first bottom edge; a second bottom extension extending from the second bottom edge to a second bottom extension edge; wherein the second bottom extension has a third taper extending from the second bottom edge proximate to the second corner to the second bottom extension edge and a fourth taper extending from the second bottom edge proximate to the third corner to the second bottom extension edge such that a width of the second bottom extension edge is less than a width of the second bottom edge; a third bottom extension extending from the third bottom edge to a third bottom extension edge; wherein the third bottom extension has a fifth taper extending from the third bottom edge proximate to the third corner to the third bottom extension edge and a sixth taper extending from the third bottom edge proximate to the fourth corner to the third bottom extension edge such that a width of the third bottom extension edge is less than a width of the third bottom edge; a fourth bottom extension extending from the fourth bottom edge to a fourth bottom extension edge; wherein the fourth bottom extension has a seventh taper extending from the fourth bottom edge proximate to the fourth corner to the fourth bottom extension edge and a eighth taper extending from the fourth bottom edge proximate to the first corner to the fourth bottom extension edge such that a width of the fourth bottom extension edge is less than a width of the fourth bottom edge; wherein the first wall, the second wall, the third wall, and the fourth wall define an interior space; wherein the first top extension is folded about the first top edge into the interior space such that the first top extension is parallel to and abuts the first wall; wherein the second top extension is folded about the second top edge into the interior space such that the second top extension is parallel to and abuts the second wall; wherein the third top extension is folded about the third top edge into the interior space such that the third top extension is parallel to and abuts the third wall; and wherein the fourth top extension is folded about the fourth top edge into the interior space such that the fourth top extension is parallel to and abuts the fourth wall.

A fourth aspect relates generally to an extender prepared by the steps of providing a single piece of material having a first edge and a second edge; forming, by cutting the single piece of material, at least one top extension extending from at least one wall and at least one bottom extension extending

from the at least one wall such that the at least one top extension is foldable to abut the at least one wall; forming, by cutting the at least one bottom extension, a taper in the at least one bottom extension; wherein the at least one bottom extension is configured to create a taper in a portion of the interior space when the extender is inserted into a waste receptacle; and attaching the first edge and the second edge together such that the single piece of material defines an interior space.

A fifth aspect relates generally to a method comprising cutting a single piece of material to form at least one top extension extending from at least one wall and at least one bottom extension extending from the at least one wall such that the at least one top extension is foldable to abut the at least one wall, cutting the at least one bottom extension to create a taper in the at least one bottom extension, wherein the at least one bottom extension is configured to create a taper in a portion of the interior space when the extender is inserted into a waste receptacle, and attaching the first edge and the second edge together such that the single piece of material defines an interior space.

The foregoing and other features of construction and operation will be more readily understood and fully appreciated from the following detailed disclosure, taken in conjunction with accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Some of the embodiments will be described in detail, with reference to the following figures, wherein like designations denote like members, wherein:

FIG. **1** depicts a schematic view of a first embodiment of an extender located within an embodiment of a receptacle;

FIG. **2** depicts a perspective view of the first embodiment of an extender;

FIG. **3** depicts a perspective view of a second embodiment of an extender;

FIG. **4** depicts a perspective view of the second embodiment of an extender with an embodiment of a connection element;

FIG. **5** depicts a perspective view of an embodiment of an extender operably configured with an embodiment of a receptacle;

FIG. **6** depicts a sectional view of an embodiment of an extender operably configured with an embodiment of a receptacle;

FIG. **7** depicts a schematic view of a first position of a receptacle being lifted and inverted for removal of waste contents;

FIG. **8** depicts a schematic view of a second position of a receptacle being lifted and inverted for removal of waste contents;

FIG. **9** depicts a perspective view of a third embodiment of an extender;

FIG. **10** depicts a sectional view of the third embodiment of an extender;

FIG. **11** depicts a perspective view of the third embodiment of an extender having at least one structurally integral wing;

FIG. **12** depicts a sectional view of the third embodiment of an extender having one or more structurally integral wing;

FIG. **13** depicts a perspective view of the third embodiment of the extender operably configured with an embodiment of a receptacle;

FIG. **14** depicts a sectional view of the third embodiment of the extender operably configured with an embodiment of a receptacle;

FIG. **15** depicts a perspective view of an embodiment of a receptacle having a plurality of support elements;

FIG. **16** depicts a schematic view of a first position of a receptacle being lifted and inverted for removal of waste contents;

FIG. **17** depicts a schematic view of a second position of a receptacle being lifted and inverted for removal of waste contents;

FIG. **18** depicts a perspective view of a fourth embodiment of an extender operably configured with a receptacle;

FIG. **19** depicts a top view of the fourth embodiments of an extender operably configured with a receptacle; and

FIG. **20** depicts a flowchart of an embodiment of a method.

FIG. **21** depicts a front view of an embodiment of an extender in a first pre-assembled flat position;

FIG. **22** depicts a front view of an embodiment of a transformative extender in a second pre-assembled flat position;

FIG. **23** depicts a perspective view of an embodiment of a transformative extender;

FIG. **24** depicts a perspective view of an embodiment of a transformative extender of FIG. **23** in a first reinforcement position;

FIG. **25** depicts a perspective view of an embodiment of a transformative extender of FIG. **23** in a second reinforcement position;

FIG. **26** depicts a perspective view of an embodiment of a transformative extender of FIG. **23** in a third reinforcement position;

FIG. **27** depicts a perspective view of an embodiment of a transformative extender of FIG. **23** in a fourth reinforcement position;

FIG. **28** depicts a perspective view of an embodiment of a transformative extender operably configured with an embodiment of a receptacle;

FIG. **29** depicts a top view of an embodiment of a transformative extender in a first closed position;

FIG. **30** depicts a bottom view of an embodiment of a transformative extender in a first closed position;

FIG. **31** depicts a top view of an embodiment of a transformative extender in a second closed position; and

FIG. **32** depicts a bottom view of an embodiment of a transformative extender in a second closed position.

DETAILED DESCRIPTION

A detailed description of the hereinafter described embodiments of the disclosed apparatus and method are presented herein by way of exemplification and not limitation with reference to the Figures. Although certain embodiments are shown and described in detail, it should be understood that various changes and modifications may be made without departing from the scope of the appended claims. The scope of the present disclosure will in no way be limited to the number of constituting components, the materials thereof, the shapes thereof, the relative arrangement thereof, etc., and are disclosed simply as an example of embodiments of the present disclosure.

As a preface to the detailed description, it should be noted that, as used in this specification and the appended claims, the singular forms "a", "an" and "the" include plural referents, unless the context clearly dictates otherwise.

Referring to the drawings, FIG. **1** depicts an embodiment of an extender **100**, **200** operably engaged with a receptacle **50**. The extender **100**, **200** may be a device that may be configured to be placed at least partially within a receptacle

50, such as industry standard sized garbage can, to extend or otherwise increase a capacity of the receptacle **50**. The increased capacity, labeled as increased capacity **25** in FIG. **1**, is an amount of volume for storing garbage, waste, yard waste, leaves, etc., or any contents suitable for placement in a receptacle that is in addition to a maximum volume afforded by the receptacle **50**. For example, if the receptacle **50** becomes full of waste materials **15**, such as garbage, waste, recyclables, yard waste, and the like, any additional waste materials will not fit properly within the receptacle **50**, and likely fall to the side of the receptacle **50**, or can blow away due to the wind or other environmental elements. To increase a volume or storage capacity of the receptacle **50**, embodiments of an extender **100**, **200** may be placed at least partially within the receptacle **50** so that additional waste materials **15** may be added to the waste material already within the receptacle **50**. While the extender **100**, **200** is operatively attached to the receptacle **50**, a storage capacity of the receptacle **50** is effectively increased because of the walls of the extender **100** extending beyond a top end **51** of the receptacle **50**. Embodiments of the receptacle **50** may be a garbage can, a pail, a garbage pail, a transportable waste container, a waste collection device, a barrel, a bucket, and the like. Embodiments of the receptacle **50** may be an industrial garbage can, and may be compatible with automatic garbage truck loaders, for example, receptacles provided by waste collection companies for scheduled pickup. In some embodiments, the receptacle **50** may include a cover **53** that can be hingedly or otherwise pivotally attached to the receptacle **50**. Further, embodiments of receptacle **50** may be various sizes, as might be offered/provided by a waste collection company or a municipality, or otherwise available for purchase at a home improvement store.

With continued reference to FIG. **1**, an embodiment of extender **100** is depicted in FIG. **2**. Embodiments of extender **100** may be an insert, a tapered box, a tapered structure, a garbage containment unit, a cardboard insert, or the like, sized and dimensioned to be placed within a receptacle **50** of various sizes. Embodiments of extender **100** may include a first end **31**, a second end **32**, an outer surface **33**, an inner surface **34**, and a general opening extending therethrough. Embodiments of extender **100** may be cone-shaped, and may be comprised of a single wall. Embodiments of the extender **100** may be tapered. For instance, embodiments of the extender **100** may taper in a direction from the first end **31** toward a second end **32**, such that a width of the extender **100** may gradually decrease from the first end **31** to the second end **32**. A tapered structure or configuration of the extender **100** may ensure or promote a friction fit with the receptacle **50** as the extender **100** is lowered or otherwise placed within an interior of the receptacle **50**. The tapered configuration may also accommodate various sizes of an interior of various receptacles **50**. Further embodiments of the extender **100** may include a tapered section proximate or otherwise near the second end **32**, wherein a portion of the extender **100** (e.g. proximate or otherwise near the first end **31**) is not tapered, and only begins to taper at a point proximate or otherwise near the second end **32**.

Moreover, embodiments of the extender **100** may include a plurality of walls **40***a*, **40***b*, **41***a*, **41***b*. The plurality of walls **40***a*, **40***b*, **41***a*, **41***b* may form or otherwise define an interior space **35** of the extender **100**. Each of the plurality of walls **40***a*, **40***b*, **41***a*, **41***b* may be shaped like a trapezoid to facilitate the tapered shape/configuration of the extender **100**. A number and an arrangement of the plurality of walls, when operably configured, may correspond to a geometric shape of an opening of the receptacle **50** so that it may at least partially fit within the receptacle **50**. In one embodiment, the extender **100** may include four walls, with a front wall **40***a*, a back wall **40***b*, a first side wall **41***a*, and a second side wall **41***b*. The walls **40***a*, **40***b*, **41***a*, **41***b* may be equal in size, or may vary in size with respect to each other. Furthermore, the walls **40***a*, **40***b*, **41***a*, **41***b* may be structurally integral with each other and joined along each edge to the next wall, as shown in FIG. **2**. The edges may be creased or pre-creased to facilitate or promote flexibility of the extender **100**. The flexibility of the extender **100** may vary, but in some cases, the extender **100** may be able to be folded into a flat unit, while all of the edges of the walls **40***a*, **40***b*, **41**, **41***b* remain connected, structurally integral or otherwise.

FIG. **3** depicts an embodiment of extender **200**. Embodiments of extender **200** may share the same or substantially the same structural and functional aspects of extender **100**, including a first end **231**, a second end **232**, an outer surface **233**, and inner surface **234**, a general opening therethrough, and an interior space **235**. However, extender **200** may include at least one edge of one of the plurality of walls **240***a*, **240***b*, **241***a*, **241***b* may be a free edge, which may also allow the extender **200** to be packaged and sold as a flat, or relatively flat, or a folded flat unit. For example, a left edge of front wall **240***a* may be a free edge, while the other, right, edge of the front wall **240***a* is connected to the left edge of first side wall **241***a*. In this example, an edge of the second side wall **41***b* may also be a free edge. Any configuration or combination of free edges may be implemented to form extender **200**. In some operable configurations, such as shown in FIG. **4**, the free edges may be connected to each other for added stability once ready for use. For instance, the free edges may be connected to each other using a connection element **245**. Embodiments of connection element **245** may be an adhesive tape, such as duct tape, staples, glue, clap, or other suitable material or component that may join two edges of the walls **240***a*, **240***b*, **241***a*, **241***b* together. In other operable configurations, the free edges may remain unconnected when placed within the receptacle **50**, wherein the free edges are proximate or otherwise near each other when in this operable configuration.

With continued reference to FIGS. **2-4**, embodiments of extender **100**, **200** may also include a deflection flap **36**, **236**. Embodiments of deflection flap **36**, **236** may be a section of the extender **100**, **200** of one or more walls of extender **100**, **200** that may deflect inward or outward to accommodate various sizes of receptacle **50**. The deflection, inward or outward, may further promote or otherwise ensure a friction fit between an inner surface of the receptacle **50** and the extender **100**, **200**. For example, receptacle **50** may have various interior shapes (e.g. protrusions, etc.) that may engage portions of the extender **100**, **200** with a different force than another area of the extender **100**, **200**. The deflection flap or deflection portion **36**, **236** may deflect or otherwise move inwardly or outwardly to increase a mechanical interference or friction fit between the receptacle **50** and the extender **100**, **200** to compensate for looser connections between the receptacle **50** and the extender **100**, **200** in other areas. The deflection of the flap **36**, **236** may also be affected by waste materials already within receptacle **50**, which may also promote friction fit between the extender **100**, **200** and the receptacle **50**. Embodiments of the deflection flap **36**, **236** may be formed by one or more vertical slits **237***a*, **237***b* extending from a second end **32**, **232** of the extender **100**, **200** a distance towards the first end **32**, **232**. The vertical slits may permit deflection inwardly or outwardly, as described above. The vertical slits **237***a*, **237***b*

may be perforations, or may be a continuous cut into the extender **100**, **200**. Furthermore, embodiments of the extender **100**, **200** may be made out of cardboard or other suitable material. The material(s) forming the extender **100**, **200** may be disposable. However, in some embodiments, the extender **100**, **200** may be made of a material that can be reused without significant risk of damage if exposed to environmental elements. In further embodiments, the extender **100**, **200** may be made out a metal, such as aluminum, or plastic and can be recycled with the other contents within the receptacle **50**, such as known recyclable items that are commonly discarded.

Referring now to FIGS. **5** and **6**, embodiments of extender **100**, **200** are shown in an operable configuration and engaged with receptacle **50**. The extender **100**, **200** may be provided to an end user as a flat and/or folded unit, as described above, or may be provided to an end user partly folded or otherwise intact. If the extender **100**, **200** comes in a folded or flat unit, a user may manipulate the plurality of walls **40***a*, **40***b*, **41***a*, **41***b* to form a box-like structure, as shown in FIGS. **5** and **6**. Once assembled or otherwise formed into a box-like structure, the extender **100**, **200** may be inserted within an interior **55** of the receptacle **50**. Embodiments of the extender **100**, **200** may be placed within the receptacle **50** from a top end **51** and driven further into the interior **55** of the receptacle **50**. Because embodiments of the extender **100**, **200** may be tapered, further displacement into the interior **55** of the receptacle **50** eventually results in mechanical interference between the walls **40***a*, **40***b*, **41***a*, **41***b*, or one or more deflection flaps **36**, **236**, and an inner surface **54** of the receptacle **50**. The extender **100**, **200** may be driven/pushed, forced, placed, etc. into the interior **55** of the receptacle **50** a distance, h_r, so as to provide a friction fit between the two components to prevent, hinder, or impede dislocation of the extender **100**, **200** while the receptacle **50** is an upright, storage/collection position, as shown in FIGS. **5** and **6**. In some embodiments, the extender **100**, **200** may include a lip, edge, protrusion, or other surface feature that extends perpendicularly or substantially perpendicularly from an inner surface **34**, **234** proximate, at, or otherwise near the second end **32**, **232**. The lip or engagement surface may extend perpendicularly into a center of the interior space **35**, **235** so that waste materials **15** added into the extender **100**, **200** may engage the lip to further hinder dislocation of the extender **100**, **200** from the receptacle **50**. The lip may be bent inwards by a user or may come perforated or creased for easy folding. The distance, represented by h_r, the extender **100**, **200** enters the interior **55** of the receptacle **50** may vary and may depend on a size of the receptacle **50**. In this position, the extender **100**, **200** may be physically pulled out from and removed from the receptacle **50** by a user, but may be able to withstand other external forces such as wind, rain, addition of waste materials **55** to the receptacle, and the like. Furthermore, in this position, the extender **100**, **200** may protrude, extend, or otherwise rise from a top end **51** of the receptacle **50** a distance, h_e, which may represent an increased storage capacity for waste materials **15**. For instance, when waste materials **15** fill or substantially fill the interior **55** of the receptacle **50**, the extender **100**, **200** may be utilized to add an additional storage volume to the receptacle **50**. The volume added depends on the distance, h_e, or height, the walls **40***a*, **40***b*, **41***a*, **41***b* extend from a top end **51** of the receptacle **50**, as well as the width of each of the walls **40***a*, **40***b*, **41***a*, **41***b*. Thus, additional waste materials **15** (i.e. in addition to waste materials **15** already stored or located within the interior **15** of the receptacle **50**) may be collected, stored, accommodated, received, etc. between the walls **40***a*, **40***b*, **41**, **41***b* of the extender **100**, **200**, when the extender **100**, **200** is engaged with the receptacle **50**.

With reference now to FIGS. **7** and **8**, a manner in which the waste materials **15** and the extender **100**, **200** may be disposed is now described. While the receptacle **50** is in an upright, collection position, with the extender **100**, **200** operably engaged with the receptacle **50**, waste materials **15** may be collected and stored for eventual pickup and removal by a garbage removal company or municipality service. When it comes time for the waste materials **15** to be picked up and removed, the garbage collectors may utilize a collection vehicle **1000**, such as a garbage truck, to secure, grab, or otherwise manipulate the receptacle **50** to invert, at least to some degree, the receptacle **50** to allow the waste materials **15** to exit the interior **55** of the receptacle **50** and into a collection area of the collection vehicle **1000**. As shown in FIG. **7**, an initial amount or portion of the waste materials **15** may exit the extender **100**, **200** and/or the receptacle **50** and into the collection area of the collection vehicle **1000**. As the waste materials **15** continue to exit the receptacle **50**, a weight of the remaining waste materials **15** passing by the extender **100**, **200** may engage the extender **100**, **200**, for example, may engage an internal lip of the extender **100**, **200** proximate the second end **32**, **232**, and may help drive or otherwise urge the extender **100**, **200** out of physical engagement with the inner surface **55** of the receptacle **50**, and into the collection area of the collection vehicle **100** along with other waste materials **15**, as shown in FIG. **8**. Therefore, the waste materials **15** and the extender **100**, **200** are efficiently disposed of and collected in a single motion—or a single lift and invert of the receptacle **50**. This may save time for the garbage collectors because they do not need to stop, bend over, and hand collect waste material stacked next to the receptacle **50** because the receptacle **50** lacked the capacity to store all of the waste. Further, no additional time may be wasted to collect the additional waste materials **15** collected/stored by the presence/use of the extender **100**, **200** because the extender **100**, **200** may be disposed of and collected by the garbage collection vehicle **1000** in the same motion as if just collecting the waste stored in the receptacle **50**.

In alternative embodiments, a garbage collector(s) may physically lift and invert the receptacle **50** with the extender **100**, **200** attached thereto and empty into a garbage collection vehicle **1000**, or suitable collection means. The extender **100**, **200** may likewise disengage from the receptacle **50** for disposal along with the waste materials **15**.

With continued reference to the drawings, FIGS. **9** and **10** depict an embodiment of extender **300**. Embodiments of extender **300** may be a box, an add-on, a cardboard structure, a garbage containment unit, a cardboard accessory, or the like, sized and dimensioned to be placed on top of a cover **53** of a receptacle **50** of various sizes. The extender **300** may be a device that may be configured to be placed upon a cover **53** of a receptacle **50**, such as industry standard sized garbage can, to extend or otherwise increase a capacity of the receptacle **50**. The increased capacity may be an amount of volume for storing garbage, waste, yard waste, leaves, etc., or any contents suitable for placement in a receptacle that is in addition to a maximum volume afforded by the receptacle **50**. For example, if the receptacle **50** becomes full of waste materials **15**, such as garbage, waste, recyclables, yard waste, and the like, any additional waste materials will not fit properly within the receptacle **50**, and likely fall to the side of the receptacle **50**, or can blow away due to the wind or other environmental elements. To increase a volume or

storage capacity of the receptacle **50**, embodiments of an extender **300** may be placed on a top of a receptacle **50** so that additional waste materials **15** may be stored in addition to the waste material already stored within the receptacle **50**. While the extender **300** is operatively attached to the receptacle **50**, a storage capacity of the receptacle **50** is effectively increased because of the additional capacity or volume afforded by the extender **300**. Embodiments of the receptacle **50** may be a garbage can, a pail, a garbage pail, a transportable waste container, a waste collection device, a barrel, a bucket, and the like. In some embodiments, the receptacle **50** may include a cover **53** that can be hingedly or otherwise pivotally attached to the receptacle **50**. Further, embodiments of receptacle **50** may be various sizes, as might be offered/provided by a waste collection company or a municipality, or otherwise available for purchase at a home improvement store.

Embodiments of extender **300** may include a first end **331**, a second end **332**, an outer surface **333**, an inner surface **334**, and a general opening extending therethrough. Moreover, embodiments of the extender **300** may include a plurality of walls **340***a*, **340***b*, **341***a*, **341***b*. Each of the plurality of walls **340***a*, **340***b*, **341***a*, **341***b* may be shaped like a square or rectangle to form a box-like configuration having an interior space **335**. A number and an arrangement of the plurality of walls, when operably configured, may correspond to a geometric shape of a cover **53** of the receptacle **50** so that it may efficiently rest upon a cover **53** of the receptacle **50**. In one embodiment, the extender **300** may include four walls, with a front wall **340***a*, a back wall **340***b*, a first side wall **341***a*, and a second side wall **341***b*; embodiments of the extender **300** may include an optional bottom wall and/or a top wall, wherein the top wall may be opened when needed to place contents therein and closed to hinder access, provide protection against rain or other environmental elements, and/or minimize odor. For instance, a top wall may be movably or pivotally attached to the at least on the walls **340***a*, **34***b*, **341***a*, **34** lb. The walls **340***a*, **340***b*, **341***a*, **341***b* may be equal in size, or may vary in size with respect to each other. Furthermore, the walls **340***a*, **340***b*, **341***a*, **341***b* may be structurally integral with each other and joined along each edge to the next wall, as shown in FIG. **9**. The edges may be creased or pre-creased to facilitate or promote flexibility of the extender **300**. The flexibility of the extender **100** may vary, but in some cases, the extender **300** may be able to be folded into a flat unit, while all of the edges of the walls **340***a*, **340***b*, **341**, **341***b* remain connected, structurally integral or otherwise.

Furthermore, embodiments of extender **300** may include at least one edge of one of the plurality of walls **340***a*, **340***b*, **341***a*, **341***b* may be a free edge, which may also allow the extender **300** to be packaged and sold as a flat, or relatively flat, or a folded flat unit. For example, a left edge of front wall **340***a* may be a free edge, while the other, right, edge of the front wall **340***a* is connected to the left edge of first side wall **341***a*. In this example, an edge of the second side wall **341***b* may also be a free edge. Any configuration or combination of free edges may be implemented to form extender **300**. In some operable configurations, the free edges may be connected to each other for added stability once ready for use. For instance, the free edges may be connected to each other using a connection element, such as a component similar to connection element **245** described supra. In other operable configurations, the free edges may remain unconnected when placed within the receptacle **50**, wherein the free edges are proximate or otherwise near each other when in this operable configuration.

Referring still to FIGS. **9** and **10**, embodiments of extender **300** may include one or more wings **345**. Embodiments of the one or more wings **345** may be a wing, a strap, a flap, a connector, a securing strap, a securing element, and the like. Embodiments of the one or more wings **345** may be a separate section of material that is operably attached to one or more walls, such a first side wall **341***a* and a second side wall **341***b*. For example, wings **345** may be affixed, adhered, stapled, or otherwise secured to one or more side walls of the extender **300**. Alternatively, embodiments of wings **345** may be structurally integral with one or walls **340***a*, **340***b*, **341***a*, **341***b* of the extender **300**, as shown in FIGS. **11** and **12**. Embodiments of the one or more wings **345** may protrude, extend, or hang down beyond a second end **332** of the extender **300** a distance to allow the wings **345** to be manipulated for operable engagement with the receptacle **50**. Furthermore, embodiments of the extender **300** may be made out of cardboard or other suitable material. The material(s) forming the extender **300** may be disposable. However, in some embodiments, the extender **300** may be made of a material that can be reused without significant risk of damage if exposed to environmental elements. In further embodiments, the extender **300** may be made out a metal, such as aluminum, or plastic and can be recycled with the other contents within the receptacle **50**, such as known recyclable items that are commonly discarded. In even further embodiments, waste materials **15** may be segregated by type/contents by locating certain materials in the extender **300**, and the more conventional or non-hazardous contents in the interior **55** of the receptacle **50**. For example, normal waste materials **15** may be kept in the receptacle **50**, while batteries may be placed within the interior space **335** of the extender **300** to separate the contents, making it easier for collection companies to sort contents. Sorting contents may be made easier because the contents of extender **300** may be dumped into a separate compartment of the collection vehicle **1000** (e.g. recyclables, hazardous, etc.)

Referring now to FIGS. **13** and **14**, an embodiment of extender **300** is shown in an operable configuration and engaged with receptacle **50**. The extender **300** may be provided to an end user as a flat and/or folded unit, as described above, or may be provided to an end user partly folded or otherwise intact. If the extender **300** comes in a folded or flat unit, a user may manipulate the plurality of walls **340***a*, **340***b*, **341***a*, **341***b* to form a box-like structure, as shown in FIGS. **8-11**. Once assembled or otherwise formed into a box-like structure, the extender **300** may be placed on a cover **53** of a receptacle **50** (e.g. when the cover **53** is closed over a top end **51** of the receptacle **50**). Because the one or more wings **345** may protrude, extend, or hang down beyond a second end **332** of the extender **300** a distance, the wings **345** may be manipulated so as to be placed underneath a cover **53** of the receptacle **50** and into an interior **55** of the receptacle **50**. For instance, a user may place the extender **300** on top of the receptacle **50**, and at least slightly open the cover **53**, and when the cover **52** is at least slightly open, the user may insert the one or more wings **345** into the interior **55** of the receptacle **50**, and then return the cover **53** to a closed positon. A weight of the cover **53** may secure the extender **300** in a collection position atop the receptacle **50**, thus affording the receptacle **50** an increased storage capacity for waste materials **15**. As more waste materials **15** are placed within the interior space **335** of the extender **300**, an additional weight/force can be applied to the cover **53**, thus increasing the force exerted against the one or more wings **345**.

Accordingly, in this position, the extender **300** may protrude, extend, or otherwise rise from a top cover **53** of the receptacle **50** a distance, which may represent an increased storage capacity for waste materials **15**. For instance, when waste materials **15** fill or substantially fill the interior **55** of the receptacle **50**, the extender **300** may be utilized to add an additional storage volume to the receptacle **50**. The volume added depends on the distance, or height, the walls **340***a*, **340***b*, **341***a*, **341***b* extend from a top end **51** of the receptacle **50**, as well as the width of each of the walls **340***a*, **340***b*, **341***a*, **341***b*. Thus, additional waste materials **15** (i.e. in addition to waste materials **15** already stored or located within the interior **15** of the receptacle **50**) may be collected, stored, accommodated, received, etc. between the walls **340***a*, **340***b*, **341**, **341***b* of the extender **300**, when the extender **300** is engaged with the receptacle **50**.

FIG. **15** depicts an embodiment of a receptacle **50** that may include a plurality of support elements **56**. Embodiments of support elements **56** may be supports, box supports, extender supporters, framing elements, guide elements, corner elements, or any suitable component for preventing or hindering slidable movement of the extender **300** across the cover **53** of the receptacle **50** when placed atop the receptacle **50**. Embodiments of the support elements **56** may be positioned in or more corner locations of the cover **53** of the receptacle **50**. Additionally, support elements **56** may be positioned on the cover **53** at a location that may correspond to where a wall **340***a*, **340***b*, **341***a*, **341***b* engage the cover **53** of the receptacle **50**. Embodiments of the support elements **56** may include a right angle or a substantially right angle to accommodate or correspond with a corner of the extender **300**. Embodiments of the support elements **56** may include a first wall and a second wall, or a single wall, that may protrude or extend upwards from the cover **53** of the receptacle. Thus, an extender **300** may be placed between the support elements **56**, wherein the support elements **56** may prevent or hinder slidable movement of the extender **300** to help retain the extender **300** in position. Further, embodiments of the support elements **56** may be structurally integral with the cover **53**, or may be separately attached to the cover **53**, and may be made of the same or different material of the cover **53**. In most embodiments, the support elements **56** may be comprised of a rigid material.

With reference now to FIGS. **16** and **17**, a manner in which the waste materials **15** and the extender **300** may be disposed is now described. While the receptacle **50** is in an upright, collection position, with the extender **300** operably engaged with the receptacle **50**, waste materials **15** may be collected and stored for eventual pickup and removal by a garbage removal company or municipality service. When it comes time for the waste materials **15** to be picked up and removed, the garbage collectors may utilize a collection vehicle **1000**, such as a garbage truck, to secure, grab, or otherwise manipulate the receptacle **50** to invert, at least to some degree, the receptacle **50** to allow the waste materials **15** to exit the interior **55** of the receptacle **50** and into a collection area of the collection vehicle **1000**. As shown in FIG. **15**, an initial amount or portion of the waste materials **15** may exit the extender **300** into the collection area of the collection area. As the waste materials **15** exit the extender **300** and the receptacle **50** is at least partially inverted, the cover **53** also begins to open, releasing the one or more wings **345** of extender **300**. When the one or more wings **345** are released (i.e. the cover **53** no longer pinches the wings **345** against a top lip of the receptacle **50**), the extender **300** is physically disengaged with the receptacle **50**, and drops into the collection area of the collection vehicle **100** along with other waste materials **15**, as shown in FIG. **16**. Therefore, the waste materials **15** and the extender **300** are efficiently disposed of and collected in a single motion—or a single lift and invert of the receptacle **50**. This may save time for the garbage collectors because they do not need to stop, bend over, and hand collect waste material stacked next to the receptacle **50** because the receptacle **50** lacked the capacity to store all of the waste. Further, no additional time may be wasted to collect the additional waste materials **15** collected/stored by the presence/use of the extender **300** because the extender **300** may be disposed of and collected by the garbage collection vehicle **1000** in the same motion as if just collecting the waste stored in the receptacle **50**.

In alternative embodiments, a garbage collector(s) may physically lift and invert the receptacle **50** with the extender **300** attached thereto and empty into a garbage collection vehicle **1000**, or suitable collection means. The extender **300** may likewise disengage from the receptacle **50** for disposal along with the waste materials **15**.

FIGS. **18** and **19** depict yet another embodiment of an extender **400**. Embodiments of extender **400** may be permanently attached to a receptacle **50**. For instance, embodiments of extender **400** may be permanently attached to a cover **53** of the receptacle **50**. Embodiments of extender **400** may be collapsible, such that when additional storage capacity is not needed, the extender **400** may be collapsed into a first, flat position, and when needed to increase a storage capacity of the receptacle **50**, the extender **50** may be unfolded or moved to a second, erect position. Moreover, embodiments of the extender **400** may include a plurality of walls **440***a*, **440***b*, **441***a*, **441***b*, an outer surface **433**, and inner surface **434**, and an interior space **435** to accommodate waste materials **15**. At least two of the walls **440***a*, **440***b*, **441***a*, **441***b* may be spring loaded and hingedly movable from a flat position to an upright, erect position. While the spring loaded walls are held erect or partially erect, another wall, which may not be spring loaded, can be raised to fit between the spring loaded wall. The force of the spring loaded wall acting on either side of the free standing wall will keep the walls erect, and in the second, upright position configured to received and store waste materials **15** beyond or in addition to the waste materials **15** stored within the receptacle **50**. A remaining wall, which may not be spring loaded, may also be lifted upright so as to fit between the spring loaded walls to complete the extender **400**. While embodiments of extender **400** may not be disposable, the method and manner in which the contents of both the extender **400** and receptacle **50** are emptied may be similar to the methods described with respect to extender **100**, **200**, **300**.

Referring now to FIGS. **1-19**, and additional reference to FIG. **20**, embodiments of a method for collecting garbage may include a step of providing a receptacle, such as receptacle **50**, for storing waste materials. For example, a garbage collecting service may provide homeowners, users, renters, etc. with a receptacle **50** of a certain size, wherein the receptacle **50** may be configured to be lifted and inverted by a mechanical means of a garbage collection vehicle **1000** to empty the waste materials **15** within the receptacle **50**. Another step may be to provide an extender **100**, **200**, **300** for use with the receptacle **50**, the extender cooperating with the receptacle **50** to increase a storage capacity of the provided receptacle **50**, wherein the extender **100**, **200**, **300** is disposable along with the waste materials **15**. Another step may be collecting the waste materials **15** and the extender **100**, **200**, **300** at the same time, using the mechanical means

of the garbage collection means **1000**. For example, the extender **100**, **200**, **300** and the receptacle **50** may be emptied of waste materials in a same motion. This method may save labor time for the garbage collectors because a driver or operator(s) may stay in the truck and pick up the receptacle according to existing methods, yet dump the contents of the extender (and potentially the extender itself) in the same motion. Moreover, the method may allow customers to purchase a smaller trash service (e.g. smaller size container) with a temporary means in which to increase a capacity of the purchased receptacle. The disposability of the extender **100**, **200**, **300** may be a cost-effective alternative to buying a larger receptacle service, and may be a way for a garbage service collection company to secure more customers by including one or more extenders in a package.

Referring now to FIGS. **21-32**, another embodiment of a transformative extender **700** is shown. Transformative extender **700** may be a receptacle support device. Transformative extender **700** may be a container that is foldable into an extender for a waste receptacle. In an exemplary embodiment, transformative extender **700** is configured to transform into an closable container. Transformative extender **700** may be made out of a flat piece of material. For instance, the transformative extender **700** may be made of a flat rectangular piece of material such as cardboard, plastic, corrugated plastic, etc. wherein the flat rectangular piece of material is configured to be folded into a closeable container. Referring to FIG. **21**, an embodiment of the transformative extender **700** is shown in a first pre-assembled flat position. In an exemplary embodiment, transformative extender **700** has a first wall **701**, a second wall **702**, a third wall **703** (not shown), and a fourth wall **704** (not shown). In this exemplary embodiment, the transformative extender **700** further has a first top extension **705** extending from a top edge of the first wall **701**, a second top extension **706** extending from a top edge of the second wall **702**, a third top extension **707** (not shown) extending from a top edge of the third wall **703**, and a fourth top extension **708** (not shown) extending from a top edge of the fourth wall **704**. In this exemplary embodiment, the transformative extender **700** has a first bottom extension **709** extending from a bottom edge of the first wall **701**, a second bottom extension **710** extending from a bottom edge of the second wall **702**, a third bottom extension **711** (not shown) extending from a bottom edge of the third wall **703**, and a fourth bottom extension **712** (not shown) extending from a bottom edge of the fourth wall **704**. The top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** are shown as rectangular in shape, though it should be understood that the top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** may be triangular in shape, or any other shape. The top extensions **705**, **706**, **707**, and **708** may be tapered. The top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** may be flaps, walls, tabs, wings, strips, lids, and the like. The top extensions **705**, **706**, **707**, **708** may be positioned opposite of the bottom extensions **709**, **710**, **711**, **712**.

With continuing reference to an exemplary embodiment shown in FIG. **21**, the walls **701-704** are configured to define an interior space **720** having a rectangular shape. The top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** may be foldable at the locations where the top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** abut the walls **701**, **702**, **703**, and **704**. The top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** may be independently movable from one another. The top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** may be made of the same material as the walls **701**, **702**, **703**, and **704**. The top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** may be made out of a different material than the walls **701**, **702**, **703**, and **704**. For example, the walls **701**, **702**, **703**, and **704** may be made of cardboard and one or more of the top extensions **705**, **706**, **707**, **708** and the bottom extensions **709**, **710**, **711**, and **712** may be made out of plastic, corrugated cardboard or plastic, or cardboard coated with a water-resistant or water-proof coating. The entire transformative extender **700** may be coated with a water-proof, water-resistant, or insect-repelling coating. This may be advantageous for preventing weather and insect damage to the extender when in use. The material of the transformative extender **700** may be biodegradable. The transformative extender **700** may be configured to s engage with a waste receptacle **732** such that the transformative extender **700** increases the volume of the waste receptacle **732** into which waste materials may be received. A waste receptacle **732** may be a garbage can, a receptacle, a receptacle for storing waste materials, a container, and the like. A waste receptacle **732** may have a substantially rigid body or a rigid body. A waste receptacle **732** may have a closed bottom. In an exemplary embodiment, waste receptacle **732** has a lid **733**.

The transformative extender **700** is not limited to having a first wall **701**, a second wall **702**, a third wall **703**, and a fourth wall **704**. For example, the transformative extender **700** may have a single wall such that the interior space **20** is cylindrical in shape. As another example, the transformative extender **700** may have six walls such that the interior space has a hexagonal cross section. Any number of walls is contemplated. Transformative extender **700** is not limited to having a first top extension **705**, a second top extension **706**, a third top extension **707**, and a fourth top extension **708**. For example, transformative extender **700** may have a single top extension. Transformative extender **700** is not limited to having a first bottom extension **709**, a second bottom extension **710**, a third bottom extension **711**, and a fourth bottom extension **712**. For example, transformative extender **700** may have a single bottom extension. Any number of top extensions and bottom extensions are contemplated.

Referring to FIG. **22**, the transformative extender **700** is shown in a second pre-assembled flat position in which the bottom extensions **709**, **710**, **711**, and **712** have been cut such that each bottom extension **709**, **710**, **711**, and **712** has a taper. The taper may begin at each wall **701**, **702**, **703**, and **704**, and increase along each bottom extension **709**, **710**, **711**, and **712** extending away from the walls **701**, **702**, **703**, and **704**, respectively. The transformative extender **700** may be manufactured such that the bottom extensions **709**, **710**, **711**, and **712** are pre-cut to have tapers. The tapers of the bottom extensions **709**, **710**, **711**, and **712** may be formable along perforations of the bottom extensions **709**, **710**, **711**, and **712**. For example, the transformative extender **700** may be manufactured such that the bottom extensions **709**, **710**, **711**, and **712** have perforations such that an end user can create the tapers in the bottom extensions **709**, **710**, **711**, and **712** by removing perforated sections of the bottom extensions **709**, **710**, **711**, and **712**. The tapers in the bottom extensions **709**, **710**, **711**, and **712** may be made by folding sections of the bottom extensions **709**, **710**, **711**, and **712**. The folding of sections of the bottom extensions **709**, **710**, **711**, and **712** to create tapered shapes thereof may be facilitated by pre-formed perforations in the bottom extensions **709**, **710**, **711**, and **712** that guide the folds such that each of the bottom extensions **709**, **710**, **711**, and **712** have

the same tapered shape. The bottom extensions **709**, **710**, **711**, and **712** may have no taper. Further, it should be understood that the bottom extensions **709**, **710**, **711**, and **712** are not limited to the size that is shown in the Figures in relation to the walls **701**, **702**, **703**, and **704**. For example, as shown in FIG. **22**, each of the bottom extensions **709**, **710**, **711**, **712** have a length extending from a bottom edge where the bottom extensions **709**, **710**, **711**, **712** abut the walls **701**, **702**, **703**, **704**, to a bottom extension edge where each bottom extension **709**, **710**, **711**, **712** ends. The lengths of the bottom extensions **709**, **710**, **711**, **712** in FIG. **22** are shown approximately one half the length of the walls **701**, **702**, **703**, and **704**. However, the bottom extensions **709**, **710**, **711**, **712** may each have a length that is equal to the lengths of the walls **701**, **702**, **703**, and **704**. As another example, one or more bottom extensions **709**, **710**, **711**, **712** may have different lengths.

Referring to FIG. **23**, a perspective view of an embodiment of transformative extender **700** is shown with walls **701**, **702**, **703**, and **704** defining an interior space **720**. The top extensions **705**, **706**, **707**, **708** may be configured to reinforce the extender by providing increased structural support to the transformative extender **700** such that when the transformative extender **700** is inserted into a waste receptacle **732**, the placement of additional waste materials into the transformative extender **700** does not weaken the transformative extender **700** or deform the shape of the extender or the walls **701**, **702**, **703**, **704** thereof. This may be accomplished by folding each of the top extensions **705**, **706**, **707**, **708** into the interior space **720** such that the first top extension **705** abuts the first wall **701**, the second top extension **706** abuts the second wall **702**, the third top extension **707** abuts the third wall **703**, and the fourth top extension **708** abuts the fourth wall **704**. The positioning of each top extension **705**, **706**, **707**, **708** into the interior space **720** to abut the first wall **701**, second wall **702**, third wall **703**, and fourth wall **704**, respectively, may be referred to as reinforcement positions.

Referring to FIG. **24**, the transformative extender **700** is shown in a first reinforcement position such that the third top extension **707** has been folded into the interior space **720** and abuts the third wall **703**. Referring to FIG. **25**, the transformative extender **700** is shown in a second reinforcement position such that the second top extension **706** has been folded into the interior space **720** and abuts the second wall **702**. Referring to FIG. **26**, the transformative extender **700** is shown in a third reinforcement position such that the first top extension **705** has been folded into the interior space **720** and abuts the first wall **701**. Referring to FIG. **27**, the transformative extender **700** is shown in a fourth reinforcement position such that the fourth top extension **708** has been folded into the interior space **720** and abuts the fourth wall **704**. It should be understood that the top extensions **705**, **706**, **707**, **708** are foldable into the interior space **720** to abut the first wall **701**, the second wall **702**, the third wall **703**, and the fourth wall **704**, respectively, in any order. If a user requires more storage volume in the transformative extender **700**, the top extensions **705**, **706**, **707**, **708** may also be placed in an upright position, and not folded into the interior space. Accordingly, the top extensions **705**, **706**, **707**, **708** may provide additional length to the interior space **720**. The top extensions **705**, **706**, **707**, **708** may be configured to secure to one another when in an upright position to provide additional stability to the top extensions **705**, **706**, **707**, and **708** in an upright position.

With continuing reference to FIGS. **23-27**, the bottom extensions **709**, **710**, **711**, and **712** are shown having a taper. The bottom extensions **709**, **710**, **711**, and **712** may be configured such that when the transformative extender **700** is inserted into a waste receptacle **732**, the bottom extensions **709**, **710**, **711**, and **712** are pressed toward the interior space **20** such that each bottom extension **709**, **710**, **711**, and **712** approaches a position in which each bottom extension **709**, **710**, **711**, and **712** abuts two adjacent bottom extensions of the bottom extensions **709**, **710**, **711**, and **712**, thereby forming a taper in a portion of the interior space **720** proximate to the bottom extensions **709**, **710**, **711**, **712**.

With continuing reference to FIG. **27**, in one embodiment, the transformative extender **700** may comprise a first wall **701** comprising a first top edge, a first bottom edge, a first side edge, and a second side edge; a second wall **702** comprising a second top edge, a second bottom edge, a third side edge, and a fourth side edge; a third wall **703** comprising a third top edge, a third bottom edge, a fifth side edge, and a sixth side edge; a fourth wall **704** comprising a fourth top edge, a fourth bottom edge, a seventh side edge, and an eighth side edge. The first side edge may abut the eighth side edge to form a first corner. The second side edge may abut the third side edge to form a second corner. The fourth side edge may abut the fifth side edge to form a third corner. The sixth side edge may abut the seventh side edge to form a fourth corner. The transformative extender **700** may further comprise a first top extension **705** extending from the first top edge. A width of the first top extension **705** may extend between the first corner and the second corner. The transformative extender **700** may further comprise a second top extension **706** extending from the second top edge. A width of the second top extension **706** may extend between the second corner and the third corner. The transformative extender **700** may further comprise a third top extension **707** extending from the third top edge. A width of the third top extension **707** may extend between the third corner and the fourth corner. The transformative extender **700** may further comprise a fourth top extension **708** extending from the fourth top edge. A width of the fourth top extension **708** may extend between the fourth corner and the first corner. A first bottom extension **709** may extend from the first bottom edge to a first bottom extension edge. The first bottom extension **709** may have a first taper extending from the first bottom edge proximate to the first corner to the first bottom extension edge and a second taper extending from the first bottom edge proximate to the second corner to the first bottom extension edge such that a width of the first bottom extension edge is less than a width of the first bottom edge. A second bottom extension **710** may extend from the second bottom edge to a second bottom extension edge. The second bottom extension **710** may have a third taper extending from the second bottom edge proximate to the second corner to the second bottom extension edge and a fourth taper extending from the second bottom edge proximate to the third corner to the second bottom extension edge such that a width of the second bottom extension edge is less than a width of the second bottom edge. A third bottom extension **711** may extend from the third bottom edge to a third bottom extension edge. The third bottom extension **711** may have a fifth taper extending from the third bottom edge proximate to the third corner to the third bottom extension edge and a sixth taper extending from the third bottom edge proximate to the fourth corner to the third bottom extension edge such that a width of the third bottom extension edge is less than a width of the third bottom edge. A fourth bottom extension **712** may extend from the fourth bottom edge to a fourth bottom extension edge. The fourth bottom extension **712** may have a seventh taper extending from the fourth bottom edge

proximate to the fourth corner to the fourth bottom extension edge and a eighth taper extending from the fourth bottom edge proximate to the first corner to the fourth bottom extension edge such that a width of the fourth bottom extension edge is less than a width of the fourth bottom edge. The first wall **701**, the second wall **702**, the third wall **703**, and the fourth wall **704** may define an interior space **720**. The first top extension **705** may be folded about the first top edge into the interior space **720** such that the first top extension **705** is parallel to and abuts the first wall **701**. The second top extension **706** may be folded about the second top edge into the interior space **720** such that the second top extension **706** is parallel to and abuts the second wall **702**. The third top extension **707** may be folded about the third top edge into the interior space **720** such that the third top extension **707** is parallel to and abuts the third wall **703**. The fourth top extension **708** may be folded about the fourth top edge into the interior space **720** such that the fourth top extension **708** is parallel to and abuts the fourth wall **704**.

Referring to FIG. **28**, the transformative extender **700** is shown operatively configured with an embodiment of a waste receptacle **732** such that the transformative extender **700** is inserted into the waste receptacle **732**. As the transformative extender **700** is inserted further into a waste receptacle **732**, the bottom extensions **709**, **710**, **711**, and **712** may press further inward into the interior space until each bottom extension abuts two adjacent bottom extensions of the bottom extensions **709**, **710**, **711**, and **712**. For example, the first bottom extension **709** may press inward toward the interior space **720** of the transformative extender **700** when the extender is inserted into a waste receptacle **732** such that the first bottom extension **709** abuts the second bottom extension **710** and the fourth bottom extension **712**. The inward pressing of the bottom extensions **709**, **710**, **711**, and **712** as the transformative extender **700** is inserted into a waste receptacle **732** may cause the transformative extender **700** to have a tapered shape such that the interior space **720** proximate to the top extensions **705**, **706**, **707**, and **708** is larger than the interior space **720** proximate to the bottom extensions **709**, **710**, **711**, and **712** formed by a tapered portion of the interior space **720** by the bottom extensions **709**, **710**, **711**, **712**. This may permit the transformative extender **700** to be inserted further into a waste receptacle **732**, and may also help permit waste materials to be directed into the waste receptacle **732**. The taper of the transformative extender **700** caused by the pressing inwards toward the interior space **720** of the bottom extensions **709**, **710**, **711**, and **712** may also permit multiple extenders **700** to be inserted into one another, for example, such that the bottom extensions **709**, **710**, **711**, and **712** of a first transformative extender **700** are inserted into the interior space **720** of a second extender proximate to the top extensions **705**, **706**, **707**, and **708** of the second transformative extender **700**. This may be advantageous for directing waste materials into a waste receptacle **732** from a location higher than the waste receptacle **732**, such as out of a window of a building. The transformative extender **700** may be configured to disengage or release from the waste receptacle **732** such that the waste materials in the waste receptacle **732** and the waste materials in the transformative extender **700** and the transformative extender **700** can be disposed of. For example, the waste receptacle **732** may be configured to engage with a waste disposal vehicle such that the waste disposal vehicle inverts the waste receptacle **732** and causes the transformative extender **700** to release from the waste receptacle **732** such that the transformative extender **700**, the waste materials in the interior space **720** of the transformative extender **700**, and the waste materials in the waste receptacle **732** exit the waste receptacle **732** and are disposed of into the waste disposal vehicle.

In an exemplary embodiment, the transformative extender **700** is configurable to transform into a container, for example, a box, such as a moving or storage box. For example, transformative extender **700** may be a box configured to be transformed to include a tapered structure that is configured such that when the transformed box is inserted into the receptacle **732**, the tapered structure provides a universal fit such that the transformed box can be inserted into different receptacles having different sizes. The box may comprise a plurality of walls that are configured to enclose an interior space or region **720** of the box. The box may be configured to be transformed to include a reinforcing structure that is foldable into the interior space or region **720** of the box. The reinforcing structure may be configured to form bottom wall **741** of the box. The tapered structure may be configured to form a closable lid of the box, for example, a top wall **740**. As an example, in one embodiment, the plurality of walls configured to enclose an interior space or region **720** of the box may be top extensions **705**, **706**, **707**, **708** or bottom extensions **709**, **710**, **711**, **712**.

With reference to FIG. **29**, a top view of the transformative extender **700** formed into a container is shown in which the bottom extensions **709**, **710**, **711**, **712** have been folded in a closed position to form an additional wall, for example, top wall **740**. This may be accomplished by first folding two of the bottom extensions **709**, **710**, **711**, and **712** to be perpendicular to the walls **701**, **702**, **703**, and **704** and positioned across from one another. For example, the first bottom extension **709** and the third bottom extension **711** may be folded towards one another. The other two bottom extensions such as the second extension **710** and the fourth extension **712** may then be folded towards one another such that the second bottom extension **710** and the fourth bottom extension **712** lay on top of the first bottom extension **709** and the third bottom extension **711**. The bottom extensions **709**, **710**, **711**, and **712** may be secured in this position as may be desirable when transporting, shipping, or mailing the transformative extender **700**. This may be accomplished by taping the bottom extensions **709**, **710**, **711**, and **712**. As another example, the bottom extensions **709**, **710**, **711**, and **712** may be releasably closed by an attachment mechanism such as Velcro® disposed on the bottom extensions **709**, **710**, **711**, and **712**, by magnets, glue, buttons, snaps, and the like. The bottom extensions **709**, **710**, **711**, and **712** may be configured to open and close to form top wall **740** multiple times, or may be configured to close for a single use.

It should be understood that the bottom extensions **709**, **710**, **711**, **712** may each have a length that is equal to a length of each wall **701**, **702**, **703**, and **704**. In this instance, the top wall **740** of the transformative extender **700** may likewise be formed by folding over each bottom extension **709**, **710**, **711**, **712**. For example, the first bottom extension **709** may be folded perpendicular to the walls **701**, **702**, **703**, **704**, followed by the third bottom extension **711** being folded over the first bottom extension **709**, and then the second bottom extension **710** may be folded over the third bottom extension **711**, and finally the fourth bottom extension **712** may be folded over the second extension **710**. Any means such as glue, buttons, snaps, magnets, and the like, of securing the bottom extensions **709**, **710**, **711**, **712** in a closed position to form top wall **740** may likewise be employed.

Referring to FIG. **30**, a bottom view of the transformative extender **700** formed into a container in a first closed

position is shown. For example, the bottom extensions **709**, **710**, **711**, and **712** may be securably closed to create top wall **740**, for example, as described above, and the top extensions **705**, **706**, **707**, and **708** may be configured to form an additional wall, for example, bottom wall **741**. The transformative extender **700** may thereby be configured to create an enclosed container, such as a box, for example, a moving box or a storage box. For example, as shown in FIG. **30**, the top extensions **705**, **706**, **707**, and **708** may be folded inwards such that the interior space **720** is defined further by a bottom wall **741**. This may be accomplished by first folding two of the top extensions **705**, **706**, **707**, and **708** that are positioned across from one another, such as the second top extension **706** and the fourth top extension **708** towards one another and then folding the other two top extensions **705**, **707** towards one another on top of the second top extension **706** and the fourth top extension **708**. The top extensions **705**, **706**, **707**, and **708** may be secured in this position to form a bottom wall **741**. This may be accomplished by taping the top extensions **705**, **706**, **707**, and **708**. As another example, the top extensions **705**, **706**, **707**, and **708** may be releasably closed by an attachment mechanism such as Velcro® disposed on the top extensions **705**, **706**, **707**, and **708**, by magnets, glue, buttons, snaps, and the like. The top extensions **705**, **706**, **707**, and **708** may be configured to open and close to create bottom wall **741** multiple times, or may be configured to close for a single use. It may be particularly advantageous to use the top extensions **705**, **706**, **707**, **708** to form the bottom wall **741** of the transformative extender **700** formed into a container in embodiments in which the top extensions are not tapered. The non-tapered shape of the top extensions **705**, **706**, **707**, **708** in that instance may provide increased stability to the bottom wall **741** for supporting items placed into the transformative extender **700** to be stored, transported, mailed, shipped, and the like.

It should be understood that the top extensions **705**, **706**, **707**, **708** may each have a length that is equal to a length of each wall **701**, **702**, **703**, and **704**. In this instance, the bottom wall **741** of the transformative extender **700** may be formed by folding over each top extension **705**, **706**, **707**, **708**. For example, the first top extension **705** may be folded perpendicular to the walls **701**, **702**, **703**, **704**, followed by the third top extension **707** being folded over the first top extension **705**, and then the second top extension **710** may be folded over the third top extension **707**, and finally the fourth top extension **708** may be folded over the second top extension **706**. Any means such as glue, buttons, snaps, magnets, and the like, of securing the bottom extensions **705**, **706**, **707**, **708** in a closed position to form bottom wall **741** may likewise be employed.

Referring to FIG. **31**, a top view of the transformative extender **700** formed into a container in a second closed position is shown. For example, the bottom extensions **709**, **710**, **711**, and **712** may be configured to be closable to create top wall **740** with or without using tape, Velcro® or other attachment means. For example, bottom extensions **709**, **710**, **711**, and **712** may be folded sequentially such that the first bottom extension **709** is folded inward, the fourth bottom extension **412** is folded inward on top of the first bottom extension **709**, the third bottom extension **711** is folded inward on top of the fourth bottom extension **712**, and the second bottom extension **710** is folded inward on top of the third bottom extension **711**, and a portion of the second bottom extension **710** may be placed underneath a portion of the first bottom extension **709** to secure all the bottom extensions **709**, **710**, **711**, **712** in place.

Referring to FIG. **32** a bottom view of the transformative extender **700** formed into a container in a second closed position is shown. For example the top extensions **705**, **706**, **707**, and **708** may be configured to be closable to create top wall **41** with or without using tape, Velcro® or other attachment means. For example, top extensions **705**, **706**, **707**, and **708** may be folded such that the first top extension **705** is folded inward, the fourth top extension **708** is folded inward on top of the first top extension **705**, the third top extension **707** is folded inward on top of the fourth top extension **708**, and the second top extension **706** is folded inward on top of the third top extension **707**, and a portion of the second bottom extension **706** may be placed underneath a portion of the first bottom extension **705** to secure all the top extensions **705**, **706**, **707**, **708** in place. It should be understood that any combination of closed positions of the top extensions **705**, **706**, **707** and **708**, and the bottom extensions **709**, **710**, **711**, and **712** of the transformative extender **700** are contemplated. For example, the top extensions **705**, **706**, **707**, **708**, and the bottom extensions **709**, **710**, **711**, **712** may be folded in any order.

As an example of use of the transformative extender **700** according to one embodiment, a user may secure the top extensions **705**, **706**, **707**, **708** to form bottom wall **741** such that the transformative extender **700** is configured to receive objects as a container, place objects into the transformative extender **700** formed into a container, and then secure the bottom extensions **709**, **710**, **711**, and **712** to create top wall **740**. A user may then transport, ship, mail, deliver, or otherwise transport the objects in the transformative extender **700** formed into a container. Once at the desired location, the user may then remove the objects after transporting the objects, for example, after moving personal belongings to a new living area. The user may then open the bottom extensions **709**, **710**, **711**, and **712** to be parallel to the walls **701**, **702**, **703**, **704** and thereby transform the bottom wall and then insert the transformative extender **700** into a waste receptacle **732** for further use in placing additional waste materials into the waste receptacle **732**.

As another example, the user may use the transformative extender **700** to transport waste materials to a waste receptacle **732**. The user may then place the entire transformative extender **700** into the waste receptacle **732**. This may be advantageous when a user is cleaning, organizing, or otherwise moving household or other objects around by permitting the user to use the transformative extender **700** as a portable disposable or reusable container. For example, the user may organize unwanted objects such as waste materials into the transformative extender **700**, and dispose of the waste materials by inserting the transformative extender **700** into a waste receptacle.

The transformative extender **700** may be inserted into a waste receptacle when formed into a container. Further, the transformative extender **700** may be configured such that the top extensions **705**, **706**, **707**, and **708** are be folded to form bottom wall **741**, and the bottom extensions **709**, **710**, **711**, **712** are folded inward into the interior space **720** such that the bottom extensions **709**, **710**, **711**, **712** abut the walls **701**, **702**, **703**, **704**. In this configuration, the transformative extender **700** provides a reinforced container.

When using the transformative extender **700** as an extender in a waste receptacle **732**, the top extensions **705**, **706**, **707**, **708** may be closed, for example, in the configurations shown in FIGS. **29** and **31**, which may be advantageous in preventing waste materials placed in the interior space **730** from becoming wet during weather events, from exuding unpleasant odors, from attracting animals and

insects, and to make it easy to move a waste receptacle **732** containing the transformative extender **700** to a desired location without waste materials in the transformative extender **700** from falling out.

Transformative extender **700** may be used for multiple purposes such as packaging, shipping, storage, and the like. For example, a customer may order a product or multiple products from a seller. The seller may use transformative extender **700** to mail or ship the products to the customer by folding the transformative extender **700** into a container, such as a shipping box. This may be accomplished by the seller folding the bottom extensions **709**, **710**, **711**, **712** into a closed position to create bottom wall **740**, placing the products into the transformative extender **700** folded into a container, and then closing the top extensions **705**, **706**, **707**, **708** to form top wall **741**, thereby enclosing the products. The products may be shipped or mailed to the customer in the transformative extender **700** folded into a container. Upon receipt of the transformative extender **700** folded into a container, the customer may open the top extensions **705**, **706**, **707**, **708** and remove the products. If desired, the customer may then open the bottom extensions **709**, **710**, **711**, **712** and place the transformative extender **700** into a waste receptacle **732** for additional use in disposing of waste materials, such as any packaging materials inside of which the customer's products are delivered. Alternatively, a customer may wish to maintain the container shape of the transformative extender **700** for use in storing the products or other items. It should be understood that the transformative extender may also be sold in its container form, with a user or customer being able to configure the transformative extender **700** into an extender for a waste receptacle **732**.

In another embodiment, a transformative extender **700** may be an extender that is formed by providing a single piece of material having a first edge and a second edge; forming, by cutting the single piece of material, at least one top extension extending from at least one wall and at least one bottom extension extending from the at least one wall such that the at least one top extension is foldable to abut the at least one wall; forming, by cutting the at least one bottom extension, a taper in the at least one bottom extension; wherein the at least one bottom extension is configured to create a taper in the interior space when the extender is inserted into a waste receptacle; and attaching the first edge and the second edge together such that the single piece of material defines an interior space.

In another embodiment, the transformative extender **700** may be an apparatus that has a plurality of straight walls **701**, **702**, **703**, **704**. The plurality of straight walls **701**, **702**, **703**, **704** may define an interior space **720** between the plurality of straight walls **701**, **702**, **703**, **704**. The apparatus may comprise a plurality of tapered walls, for example, bottom extensions **70**,**5**, **706**, **707**, **708** adjacent to the plurality of straight walls **701**, **702**, **703**, **704**, the plurality of tapered walls forming a tapered section of the apparatus that extends inwardly with respect to the plurality of straight walls **701**, **702**, **703**, **704**. As another example, the apparatus may comprise a first plurality of walls, wherein the plurality of straight walls defines an interior space between the plurality of straight walls; and a second plurality of walls adjacent to the first plurality of walls, the second plurality of walls forming a tapered section of the apparatus that extends inwardly with respect to the first plurality of walls.

A method for collecting waste materials may comprise a step of providing a receptacle such as waste receptacle **732** for storing waste materials. Another step in a method for collecting waste materials may comprise providing an transformative extender **700**, for example, an transformative extender **700** comprising at least one wall, a top extension extending from a top edge of the at least one wall, a bottom extension extending from a bottom edge of the at least one wall, an interior space defined by the at least one wall, wherein the extender is configured to be inserted into a waste receptacle and receive objects into the interior space, wherein the bottom extension has a taper that is configured to press into the interior space when the extender is inserted into a waste receptacle such that the further the extender is inserted into the waste receptacle the interior space is tapered, wherein the bottom extension is releasably closable such that the interior space is further defined by a bottom wall, and wherein the top extension is releasably closable such that the interior space is further defined by a top wall. A method for collecting waste materials may further include disrupting the receptacle such that the extender disengages with the receptacle and exits the receptacle. Disrupting the receptacle may include inverting the receptacle, turning the receptacle on its side, and the like. The transformative extender **700** and receptacle may be configured to be emptied of waste materials in a same motion. Waste materials located within the interior space of the transformative extender **700** may be emptiable without an operator touching the transformative extender **700**. A method of collecting waste materials may further comprise providing a replacement extender when the transformative extender **700** is disposed of. A method of collecting waste materials may include inserting the extender into the receptacle after the receptacle and extender have been emptied of waste materials. A method of collecting waste materials may include opening one or more of top extensions **705**, **706**, **707**, and **708**.

In another embodiment, a method for collecting waste materials comprises providing a receptacle **732** for storing waste materials. The method may also comprise providing an extender such as transformative extender **700** that has a plurality of walls **701**, **702**, **703**, **704**, wherein the plurality of walls **701**, **702**, **703**, **704** defines an interior space **720**; a top extension such as top extension **705**, **706**, **707**, **708** extending from the at least one of the plurality of walls **701**, **702**, **703**, **704**, wherein the top extension is foldable into the interior space **720** such that the top extension abuts a wall of the plurality of walls **701**, **702**, **703**, **704**. The extender may further comprise a bottom extension such as bottom extension **709**, **710**, **711**, **712** extending from the at least one of the plurality of walls **701**, **702**, **703**, **704**, wherein the bottom extension is configured to form a taper in a portion of the interior space **720** when the extender **700** is inserted into a waste receptacle **732**. The method may also comprise disrupting the receptacle **700** such that the extender disengages with the receptacle **732** and exits the receptacle **732**.

Transformative extender **700** may be sold by a municipality for residents to use. Transformative extender **700** may be sold by a garbage collection company in conjunction or independently from a garbage collection service or service plan. Transformative extender **700** may include a bar code that associates the transformative extender **700** with a particular user or customer. This may be advantageous where the transformative extender **700** is configured to be reusable. As another example, the transformative extender **700** may be sold at a retailer, or a moving or shipping company. For example, a retailer that sells a variety of products, or a retailer that sells home improvement tools and supplies may sell transformative extender **700**. As another example, a company that provides rental truck or trailer services to customers needing to transport personal belongings to a new

home, or business customers needing to move office furniture or office supplies to a new office may sell transformative extender **700** as part of or as an addition to such services, thereby providing enhanced waste disposal capabilities, as well as moving and storage capabilities with a single product: the transformative extender **700**.

While this disclosure has been described in conjunction with the specific embodiments outlined above, it is evident that many alternatives, modifications and variations will be apparent to those skilled in the art. Accordingly, the preferred embodiments of the present disclosure as set forth above are intended to be illustrative, not limiting. Various changes may be made without departing from the spirit and scope of the invention, as required by the following claims. The claims provide the scope of the coverage of the invention and should not be limited to the specific examples provided herein.

What is claimed is:

1. An apparatus comprising:

a box configured to be transformed to include a tapered structure that provides a universal fit inside a garbage receptacle when the transformed box is inserted into the garbage receptacle,

wherein the box includes a plurality of straight walls, a second plurality of walls adjacent to the plurality of straight walls, and a third plurality of walls adjacent to the plurality of straight walls and opposite the second plurality of walls,

wherein each wall of the second plurality of walls and the third plurality of walls abuts a straight wall of the plurality of straight walls and extends between a first corner of the straight wall and a second corner of the straight wall, and has a free edge,

wherein each wall of the second plurality of walls has a first taper extending from the first corner to the free edge, and a second taper extending from the second corner to the free edge, wherein each first taper and each second taper has a taper angle relative to a straight wall of the plurality of straight walls,

wherein each wall of the third plurality of walls has a first side edge extending from the first corner to the free edge and a second side edge extending from the second corner to the free edge, wherein each first side edge and each second side edge has a side edge angle relative to the straight wall of the plurality of straight walls that is different than the taper angle,

wherein as the apparatus is inserted into a waste receptacle, each first taper is pressed toward a second taper such that a portion of an interior space of the apparatus has a taper,

wherein the second plurality of walls is foldable to form a top or a bottom wall of the box that is perpendicular to and immediately adjacent to the plurality of straight walls, and

wherein the third plurality of walls is foldable to form a top or a bottom wall of the box that is perpendicular to and immediately adjacent to the plurality of straight walls.

2. The apparatus of claim **1**, wherein the plurality of straight walls, the second plurality of walls, and the third plurality of walls box comprises a plurality of walls are configured to enclose an interior region of the box.

3. The apparatus of claim **1**, wherein the box is further configured to be transformed to include a reinforcing structure that is foldable into an interior space of the box.

4. The apparatus of claim **3**, wherein the reinforcing structure is configured to form a bottom wall of the box.

5. The apparatus of claim **1**, wherein the tapered structure is configured to form a closable lid of the box.

6. A method of making an extender comprising:

cutting a single piece of material having a first edge and a second edge to form at least one top extension extending from at least one wall and at least one bottom extension extending from the at least one wall such that at least one of the at least one top extension and at least one bottom extension is foldable to abut the at least one wall,

cutting each of the at least one bottom extension to create a first taper and a second taper in each of the at least one bottom extension, such that each of the at least one bottom extension abuts the at least one wall, extends between a first corner of the at least one wall and a second corner of the at least one wall, and has a free edge, such that the first taper extends from the first corner to the free edge and the second taper extends from the second corner to the free edge, wherein the first taper and second taper each have a taper angle relative to the at least one wall,

cutting each of the at least one top extensions such that each of the at least one top extensions extends between a third corner of the at least one wall and a fourth corner of the at least one wall and has a second free edge, a first side edge extending from the third corner to the second free edge, and a second side edge extending from the fourth corner to the second free edge, such that each of the first side edge and second side edge have a side edge angle relative to the at least one wall that is different than the taper angle,

wherein the at least one bottom extension is configured to create a taper in a portion of an interior space of the extender when the extender is inserted into a waste receptacle such that as the extender is inserted into a waste receptacle, each first taper is pressed toward a second taper such that a portion of an interior space of the extender has a taper, and

attaching the first edge and the second edge together such that the single piece of material defines the interior space,

wherein the at least one top extension is foldable to form a top wall or a bottom wall of a box that is perpendicular to and immediately adjacent to the at least one wall, and wherein the at least one bottom extension is foldable to form a top wall or bottom wall of the box that is perpendicular to and immediately adjacent to the at least one wall.

7. An apparatus comprising:

a first plurality of straight walls, wherein the first plurality of straight walls defines an interior space of the apparatus between the first plurality of walls;

a second plurality of walls adjacent to the first plurality of straight walls, wherein each wall of the second plurality of walls abuts an edge of a wall of the first plurality of straight walls, extends between a first corner of the wall of the first plurality of straight walls and a second corner of the wall of the first plurality of straight walls, and has a free edge,

wherein each wall of the second plurality of walls has a first taper extending from the first corner to the free edge, and a second taper extending from the second corner to the free edge, wherein the first taper and the second taper each have a taper angle relative to the wall of the first plurality of straight walls,

wherein the second plurality of walls is configured to form a tapered section of the apparatus that extends

inwardly with respect to the first plurality of walls such that as the extender is inserted further into a waste receptacle, each first taper is pressed towards a second taper such that a portion of a second interior space of the apparatus has a taper; and

a third plurality of walls adjacent to the first plurality of straight walls positioned opposite the second plurality of walls, wherein each wall of the third plurality of walls has a second free edge, wherein each wall of the third plurality of walls has a first side edge extending from a third corner of the wall of the first plurality of walls to the second free edge and a second side edge extending from a fourth corner of the wall of the first plurality of walls to the second free edge, wherein the first side edge and the second side edge each have a side edge angle relative to the wall of the first plurality of straight walls that is different than the taper angle,

wherein the second plurality of walls is foldable to form a top wall or bottom wall of a box perpendicular to and immediately adjacent to the first plurality of straight walls,

wherein the third plurality of walls is foldable to form a top wall or bottom wall of the box perpendicular to and immediately adjacent to the first plurality of straight walls.

8. The apparatus of claim **7**, wherein the third plurality of walls is foldable into the interior space such that the third plurality of walls abuts an inner surface of the first plurality of straight walls.

9. The apparatus of claim **8**, wherein the third plurality of walls and the second plurality of tapered walls are configured to fold such that the interior space is enclosed by the third plurality of walls and the second plurality of walls.

10. The apparatus of claim **7**, wherein the apparatus is recyclable.

11. The apparatus of claim **7**, wherein the tapered section is formable along a perforation.

12. The apparatus of claim **7**, wherein the apparatus is configured to fold flat.

13. The apparatus of claim **7**, wherein the apparatus includes a water-resistant coating.

14. The apparatus of claim **7**, wherein the third plurality of walls is configured to be placed in an upright position parallel to the first plurality of straight walls.

15. The apparatus of claim **7**, wherein the third plurality of walls is configured to fold to form a bottom wall of the apparatus, and wherein the second plurality of tapered walls is configured to fold to form a top wall of the apparatus to enclose the interior space.

16. A method for collecting waste materials, the method comprising:

providing a receptacle for storing waste materials;

providing a box configured to be transformed to include a tapered structure configured such that when the transformed box is inserted into the receptacle, the tapered structure provides a universal fit,

wherein the box includes a plurality of straight walls, a second plurality of walls adjacent to the plurality of straight walls, and a third plurality of walls adjacent to the plurality of straight walls and opposite the second plurality of walls,

wherein each wall of the second plurality of walls and the third plurality of walls abuts a straight wall of the plurality of straight walls and extends between a first corner of the straight wall and a second corner of the straight wall, and has a free edge,

wherein each wall of the second plurality of walls has a first taper extending from the first corner to the free edge, and a second taper extending from the second corner to the free edge, wherein the first taper and second taper each have a taper angle relative to the straight wall of the plurality of straight walls,

wherein each wall of the third plurality of walls has a first side edge extending from the first corner to the free edge and a second side edge extending from the second corner to the free edge, wherein the first side edge and the second side edge each have a side edge angle relative to the straight wall of the plurality of straight walls that is different than the taper angle,

wherein as the extender is inserted into a waste receptacle, each first taper is pressed toward a second taper such that a portion of an interior space of the apparatus has a taper,

wherein the second plurality of walls is foldable for form a top wall or a bottom wall of the box that is perpendicular to and immediately adjacent to the plurality of straight walls, and wherein the third plurality of walls is foldable for form a top or bottom wall of the box that is perpendicular to and immediately adjacent to the plurality of straight walls; and

disrupting the receptacle such that the transformed box disengages with the receptacle and exits the receptacle.

17. The method of claim **16**, wherein the box and receptacle are emptied of waste materials in a same motion.

18. The method of claim **16**, wherein waste materials located within an interior space of the box are emptied without an operator touching the box.

19. An extender for a waste receptacle comprising:

a first wall comprising a first top edge, a first bottom edge, a first side edge, and a second side edge;

a second wall comprising a second top edge, a second bottom edge, a third side edge, and a fourth side edge;

a third wall comprising a third top edge, a third bottom edge, a fifth side edge, and a sixth side edge;

a fourth wall comprising a fourth top edge, a fourth bottom edge, a seventh side edge, and an eighth side edge;

wherein the first side edge abuts the eighth side edge to form a first corner;

wherein the second side edge abuts the third side edge to form a second corner;

wherein the fourth side edge abuts the fifth side edge to form a third corner;

wherein the sixth side edge abuts the seventh side edge to form a fourth corner;

a rectangular first top extension extending from the first top edge; wherein a width of the first top extension extends between the first corner and the second corner;

a rectangular second top extension extending from the second top edge; wherein a width of the second top extension extends between the second corner and the third corner;

a rectangular third top extension extending from the third top edge; wherein a width of the third top extension extends between the third corner and the fourth corner;

a rectangular fourth top extension extending from the fourth top edge; wherein a width of the fourth top extension extends between the fourth corner and the first corner;

a first bottom extension extending from the first bottom edge to a first bottom extension edge, wherein the first bottom extension has a first taper extending from the first bottom edge proximate to the first corner to the first

bottom extension edge and a second taper extending from the first bottom edge proximate to the second corner to the first bottom extension edge such that a width of the first bottom extension edge is less than a width of the first bottom edge;

a second bottom extension extending from the second bottom edge to a second bottom extension edge, wherein the second bottom extension has a third taper extending from the second bottom edge proximate to the second corner to the second bottom extension edge and a fourth taper extending from the second bottom edge proximate to the third corner to the second bottom extension edge such that a width of the second bottom extension edge is less than a width of the second bottom edge;

a third bottom extension extending from the third bottom edge to a third bottom extension edge, wherein the third bottom extension has a fifth taper extending from the third bottom edge proximate to the third corner to the third bottom extension edge and a sixth taper extending from the third bottom edge proximate to the fourth corner to the third bottom extension edge such that a width of the third bottom extension edge is less than a width of the third bottom edge;

a fourth bottom extension extending from the fourth bottom edge to a fourth bottom extension edge, wherein the fourth bottom extension has a seventh taper extending from the fourth bottom edge proximate to the fourth corner to the fourth bottom extension edge and an eighth taper extending from the fourth bottom edge proximate to the first corner to the fourth bottom extension edge such that a width of the fourth bottom extension edge is less than a width of the fourth bottom edge,

wherein the first wall, the second wall, the third wall, and the fourth wall define an interior space,

wherein at least one of (a) the first through fourth top extensions or (b) the first through fourth bottom extensions are foldable into the interior space such that (a) the at least one of the first through fourth top extensions or (b) the first through fourth bottom extensions are parallel to and abut the first through fourth walls,

wherein the first top extension, second top extension, third top extension, and fourth top extension are foldable to form a top or bottom wall of a box perpendicular to and immediately adjacent to the first wall, second wall, third wall, and fourth wall,

wherein the first bottom extension, second bottom extension, third bottom extension, and fourth bottom extension are foldable to form a top or bottom wall of the box perpendicular to and immediately adjacent to the first wall, second wall, third wall, and fourth wall,

wherein the extender is configured such that as the extender is inserted further into a waste receptacle, each of the first bottom extension, second bottom extension, third bottom extension, and fourth bottom extension are pressed into the interior space such that a portion of the interior space has a taper.

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